

MODERN PACKAGING

JUNE

1944



N. SYDNEY

is
Pasaden
s Office
State Bldg
N. Y.
Sales O
gan Ave.
, III.



AT THE MOMENT you read this, the fighting may be at its highest pitch.

And postwar thinking may seem unpatriotic to you.

Yet, if you don't plan ahead, as the Generals do, what good is the Victory going to be?

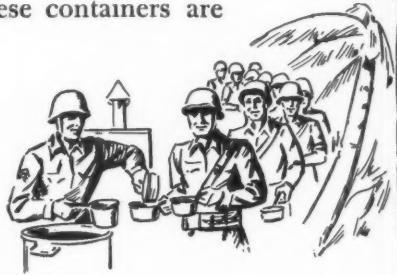
SO, DON'T WAIT . . .

Now is the time — not when the Victory Parade starts—to do some postwar thinking on your own.

You say to yourself, "How about the ten-million-odd men in uniform? A whole slew of their equipment and food comes in metal containers.

"Things like ammunition . . . beer . . . medical supplies . . . distress signals . . . emergency rations . . . you name it.

"The tin container protects these things well. Many of the men that open these containers are learning that *'nothing protects like the can.'* They're learning a new appreciation of tin. Maybe *I* can capitalize on this new appreciation, when these men are demobilized and become civilian consumers again."



Are you one of those making plans for getting their share of this future market?

AND ON THE HOME FRONT . . .

Many millions of people who used to buy on price have been won over to buying on quality. Maybe they will go back to price-buying again. But how about a restyled package which glows with "quality atmosphere"? This might hold some of them to quality-buying. It's worth thinking about.



And lastly, there's a huge reservoir of retail goods which must be made to bring stocks up to the 1941 level. Lots of these goods are packaged. Lots of them will be packaged in cans.

Canco has unparalleled research and manufacturing experience for helping you with your engineering and production problems. Consult our representative or write to . . .



AMERICAN CAN COMPANY
230 PARK AVENUE, NEW YORK 17, N. Y.

For Victory, buy and hold War Bonds

TECHNOLOGY DEPT.



Orange marmalade, toast and coffee . . . a bride's breakfast. Easy to serve when the marmalade is sealed in glass with a convenient Phoenix Compo (band) Cap. While packaging materials are rationed and restricted, depend upon us to serve packers of foods to the best of our ability. Phoenix Metal Cap Co., Chicago and Brooklyn.

Elmer Jacobs

CHARLES A. BRESKIN, *Publisher*
 CHRISTOPHER W. BROWNE, *Editor-In-Chief*
 LLOYD STOUFFER, *Editor*
 PEARL HAGENS, *Managing Editor*
 JULIA J. HICKS, *Assistant Editor*
 CHARLES A. SOUTHWICK, JR., *Technical Editor*
 R. L. VAN BOSKIRK, *Washington Editor*
 JOSEPH BOLOGNA, *Art Director*
 FLORENCE GETTER, *Editorial Assistant*



Member of Audit Bureau of Circulations

ALAN S. COLE

General Manager

P. H. BACKSTROM M. A. OLSEN

DANIEL M. BROADS *Production*

F. L. POSNER *Circulation*

WALTER S. ROSS *Promotion*

J. M. CONNORS
 221 N. La Salle St. Chicago 1, Ill.

R. C. BEGGS
 815 Superior Ave. Cleveland 14, Ohio

L. B. CHAPPELL
 427 West 5th St. Los Angeles 13, Calif.

THIS MONTH'S COVER

War-time packaging has brought an appreciation of the designer's function. No longer concerned merely with external appearance, the designer must be an engineer, working from the inside out to achieve functional qualities first of all, and beauty secondarily. This month's cover symbolizes the conception of a package in the designer's brain, its development by rigid artistic and engineering standards, and its eventual birth.



EXECUTIVE and EDITORIAL OFFICES: 122 E. 42nd St., New York 17, N. Y. WASHINGTON OFFICE: 625 Colorado Bldg., 14th & G. Sts., D.C. 6

Published the 5th of each month by Breskin Publishing Company. Publication office: Twentieth and Northampton Sts., Easton, Pa. Sponsors of the All-America Package Competition. Subscription \$5.00 per year in United States; Canadian, \$5.50; foreign, \$6.00. Two-year subscription: United States, \$8.00; Canadian, \$9.00; foreign, \$10.00. All foreign subscriptions payable in United States currency or equivalent in foreign currency computed in current exchange. Price this issue, 50¢ per copy. Copyright 1944 by Breskin Publishing Company. All rights reserved including the right to reproduce this book or portion thereof in any form. Printed in U. S. A. Acceptance under the Act of June 5, 1934, at Easton, Pa. Authorized October 7, 1936.

MODERN PACKAGING

VOLUME 17

JUNE 1944

NUMBER 10

General

EDIBLE CONTAINERS.....	67
<i>Gelatin capsules at the rate of 4 1/2 billion a year</i>	
LABELS THAT CARRY THE FLAG.....	72
<i>Brand names provided for in FEA-WFA standardized designs</i>	
WATERPROOF GUN BOOTS THAT FLOAT.....	75
<i>Vinyl resin film helps keep invasion powder dry</i>	
FROM HARDTACK TO RATION K.....	76
<i>The story of QMC's Chicago packaging laboratory</i>	
INNOVATIONS IN PENICILLIN.....	79
<i>New producer introduces a new package</i>	
FUNCTIONAL DESIGN FOR TOOL BOXES.....	83
<i>Another story of multi-purpose industrial packaging</i>	
BOXES FOR MEDALS.....	84
<i>Jeweler's-type cases in mass production</i>	
DISPLAY GALLERY.....	86
IN THE EYE.....	88
<i>Designer speaks up in a letter to the Editor</i>	
DESIGN HISTORIES.....	90
ALL-FIBRE CONTAINER FOR OIL PASTES.....	92
<i>A highly successful substitute—will it last?</i>	
STEEL STRAPPING KIT FOR OVERSEAS.....	97
<i>Packaging supplier packages his own product</i>	
PACKAGING PAGEANT.....	98
BIGGER AND BETTER BUNDLING.....	100
<i>Giant machine wraps delicate bakery products</i>	
SUCCESS STORIES IN GLASSINE.....	102
<i>Laminated materials protect two hygroscopic foods</i>	
PIONEER REDESIGNS WITHOUT PAPERBOARD.....	104
<i>Envelope package takes place of box</i>	
THERE ARE LIVE LOBSTERS IN THOSE BARRELS!.....	106
<i>Ferocious crustaceans require tender care</i>	

Technical

POSTWAR TRENDS IN PAPER COATING.....	111
<i>A discussion of current methods and future prospects</i>	
NORESEAL—A NEW CORK SUBSTITUTE.....	116
<i>Report on a promising new material by its developers</i>	
QUESTIONS AND ANSWERS.....	120

Departments

WASHINGTON REVIEW.....	122
U. S. PATENT DIGEST.....	128
EQUIPMENT AND MATERIALS.....	130
PLANTS AND PEOPLE.....	132
FOR YOUR INFORMATION.....	134

**"Trifles make perfection;
but perfection is no
trifle!"**

Michael Angelo

Each detail, *however small*, is regarded as vital in the design and construction of Redington Packaging Machines. To insure *long life and efficient operation*, our engineering staff insists upon perfection, even in the small, hidden parts—parts which assure many years of efficient operation. For example, self-aligning roller bearings, turned and ground shafting, safety throw-out, and the variable speed drive—just some of the *little* details that contribute so *much* to the excellence of Redington Packaging Machines. *Another reason* why the foremost producers of packaged goods rely on Redington in planning the new, unusual packages of the Post-War world.

**F. B. Redington Co. (Est. 1897) 110-112 S. Sangamon
Street, Chicago 7, Illinois.**

REDINGTON
PACKAGING MACHINES
FOR CARTONING • WRAPPING • SPECIAL PACKAGING

He profits most • who serves best

(A BUSINESS AXIOM WORTH
REMEMBERING, PASSED ALONG BY)



MAKERS OF

**FOOD PROTECTION
PAPERS**

KALAMAZOO VEGETABLE PARCHMENT COMPANY
PARCHMENT . KALAMAZOO 99 . MICHIGAN
BRANCH PLANTS IN PHILADELPHIA, PENNSYLVANIA, AND HOUSTON, TEXAS

An announcement of importance to the Packaging and Paper Industries



Highly versatile synthetic materials offered to manufacturers and finishers

FROM GEON resins may be made a wide variety of thermoplastic elastomers that can be used as coatings for papers, calendered or cast into film and sheet, pressure or injection molded, punched or extruded—all at low cost on standard machinery. Or in other forms, GEON may be used as a sizing, ink or paint. The number of applications yet to be discovered seems limitless.

Here is a list of properties which may be found in GEON and GEON treated materials in a wide variety of combinations:

Flexible	Increased tensile strength
Waterproof	Easily embossed
Spongeable	Wide range of colors and luster
Lightweight	
Odorless	Can be heat-sealed
Increased tear resistance	

Resistant to

Acids	Foods	Spots and stains	Light Aging
Alkalies	Creasing		Cold
Chemicals	Flame	Sticking	Heat
Oil	Mildew		

This impressive list should suggest innumerable applications for GEON in the packaging and paper fields. Our research staff and laboratory facilities are available to help you work out any special problems or applications. Chemical Division, The B. F. Goodrich Co., Rose Building, Cleveland, Ohio.

★ ★ ★

For an informative folder which further describes GEON'S properties and suggests additional applications, or for answers to your questions, write Dept. L-1, Chemical Division, Rose Building, Cleveland 15, Ohio.



GEON is available to industrial users subject to allocation under General Preference Order M-10. Limited quantities can be had for experiment.



MANHATTAN'S LION - SYMBOL OF QUALITY!

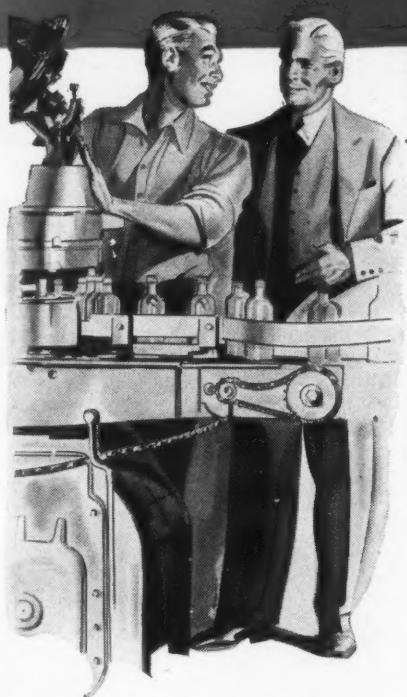
Branded more than a quarter of a century ago, Manhattan's venerable standard bearer is livelier today than ever...wise in the ways of all adhesives...and well qualified by successful experience to tackle the toughest kind of glueing problems. The satisfaction that comes with shaking out the right answers is what keeps Manhattan's "Leo" young and on all four paws.

So, whenever you're stuck for a glue that will stick—just crack the whip and Manhattan's Lion will immediately respond.



EQUATION FOR THRIFT...

MAKE Machine + Method = Efficiency



Plan your improvements now.
 Whether you want to boost the efficiency of your bottling line now or later, today's the time to start thinking about it. Alseco engineers will gladly work with you in planning the entire layout. Write today for facts about this service.

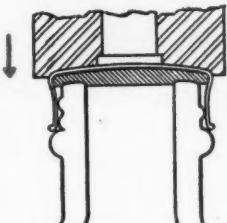
"It seals 'em better," says the foreman.

"And cheaper," says the cost man.

An Alseco machine cuts sealing cost by applying Alseco R-O Seals to as many as 240 bottles per minute . . . unattended except for filling the hopper. Fast, smooth, trouble-free.

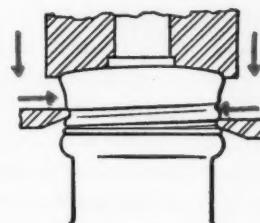
The R-O (Rolled-On) method does away with leakers, breathers and jammed caps because it tailors each seal individually to its container. See diagrams.

Machine plus method gives you an efficient, profitable sealing operation.



Plain-skirted Alseco Seal is uniformly seated. Under stationary top pressure, container lip is embedded in liner evenly all around.

While held in that position, threads are Rolled-On to conform exactly to threads on container. Each seal is tailor-made, fits perfectly.

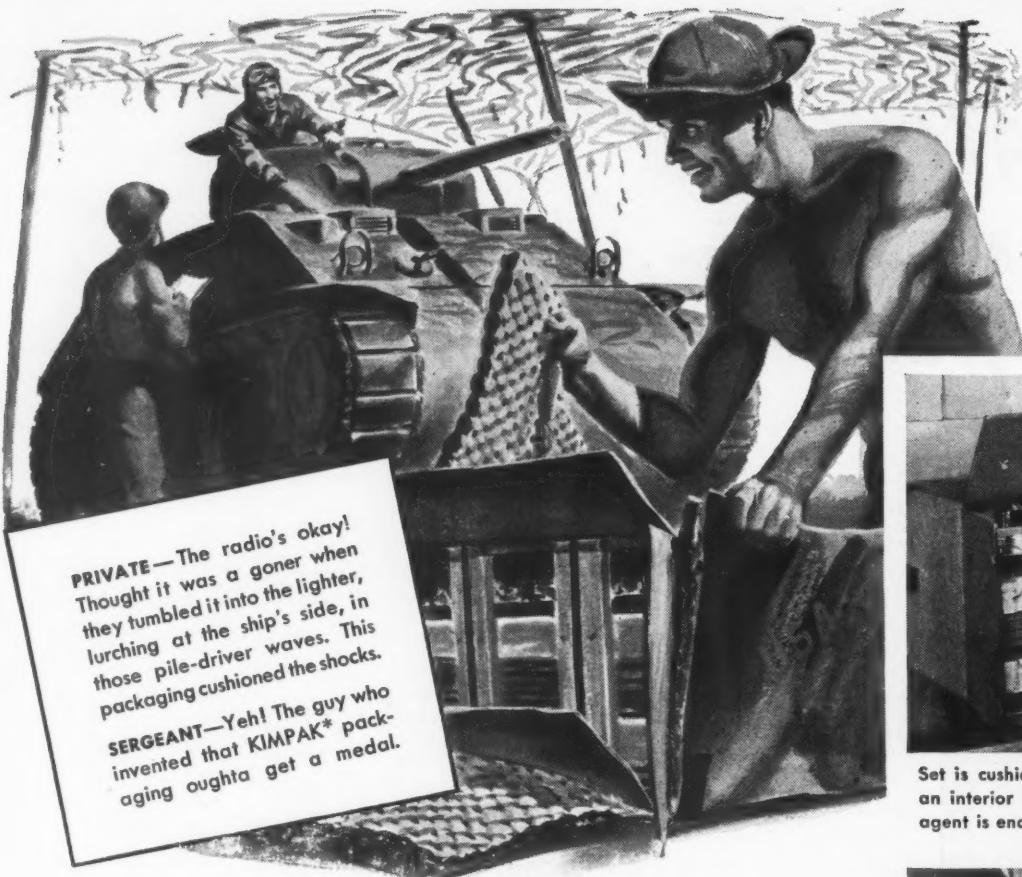


ALSECO

SEALS AND SEALING MACHINES



ALUMINUM SEAL COMPANY • 1345 THIRD AVENUE • NEW KENSINGTON • PENNSYLVANIA
 At your service: 30 years of experience building quality seals and sealing machines.



Give Your Post-War Product This Shipping-Damage Insurance

Your post-war product won't travel via landing barge or parachute, or jolt over scarred and pitted battlefields. But KIMPAK, the packaging that is protecting equipment and supplies of our armed forces under all these conditions, will have an important role to play in your product's peacetime future.

When victorious tomorrow comes, you will be able to package anything, from a pre-fabricated house to a watch crystal, safely, attractively and economically in soft, cushion-like KIMPAK. It is available in sheets, pads or rolls. Ten standard types, in various optional thicknesses, to meet individual requirements.

KIMPAK "babys" your merchandise. Protects it gently against chafing or scratching. Absorbs shocks more dependably than many packaging substances of far greater density.

Because KIMPAK is so compact, it greatly reduces package size and transportation cost, requires relatively little space in the shipping room. It is more quickly applied, eliminates need of "nesting" with loose materials, saves time and packaging expense.

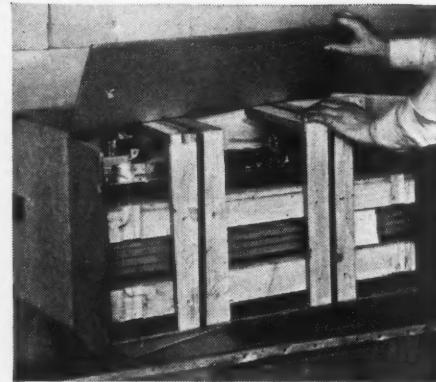
Telephone, write or wire today for a KIMPAK packaging engineer to aid you in post-war planning. Address: Kimberly-Clark Corporation, Neenah, Wis.



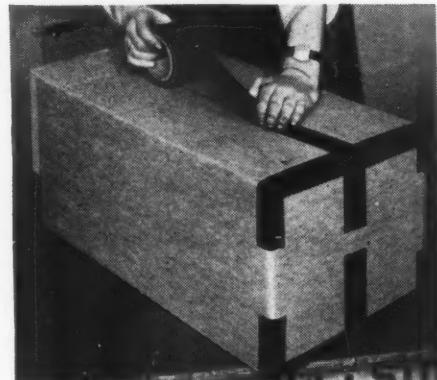
Kimpak

REG. U.S. PAT. OFF. & FOREIGN COUNTRIES
CREPED WADDING

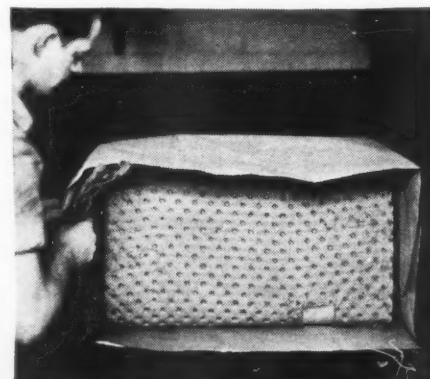
*KIMPAK (trade-mark) means Kimberly-Clark Wadding.



Set is cushion-mounted on a frame, placed in an interior unit container and a dehydrating agent is enclosed within the package.



The inner unit container is sealed with waterproof, pressure-sensitive tape and over-wrapped with a Grade C material. Entire package is dip-coated in a sealing compound.



After "setting" the dip-coated package is completely over-wrapped with a double cushion of 50-ply Dimple Embossed Type 500 KIMPAK. It is then sealed in a waterproof bag and placed in an exterior shipping container.



Lumarith cloaks the Gas Cape

The part combinations of materials will play in packaging is driven home with dramatic force in the gas cape job. From start to finish it is a case of a place for each material and each material in its place. Here is fabric, and metal foil and cellophane and Lumarith playing on the same team.

Take it apart: the gas cape is made of cellophane, the seams of the cape are pressure-positive tape backed with Lumarith for strength and waterproofness. Then comes the package. Moisture has to be held in the cellophane and the cape protected generally so, a combination of three materials fills the bill—Lumarith supplies waterproofness, toughness and fold strength; metal foil supplies the vapor-moisture proof factor; and fabric supplies the abrasion resistance.

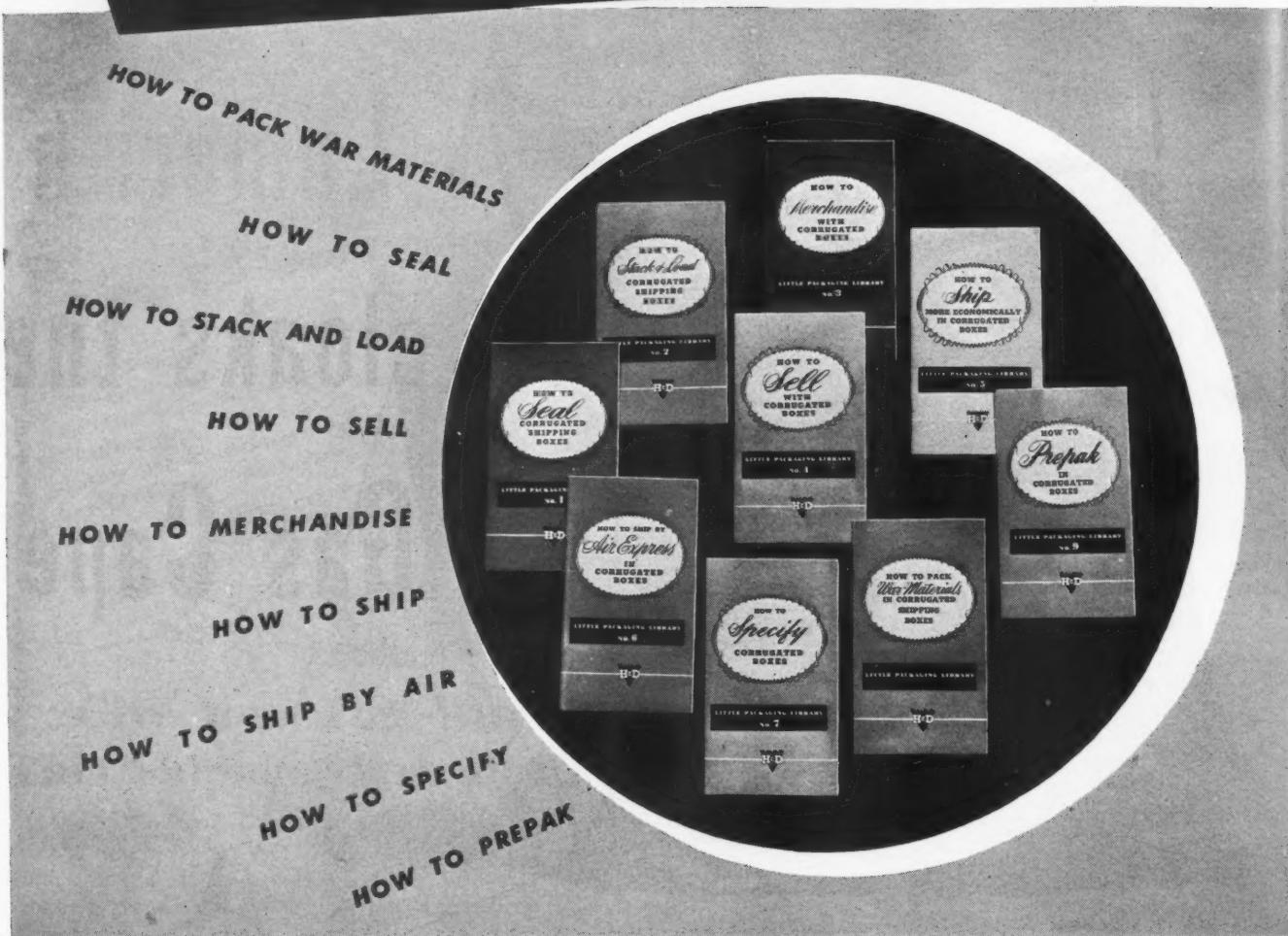
All these materials supply other secondary values and in combination they do a job that will be long remembered by packagers as magnificent team work.

The impact on packaging of this and dozens of other wartime applications will be presented to you in the

Celanese motion picture now being released for restricted showings. If you want advance information we would like to hear from you. Celanese Celluloid Corporation, The First Name in Plastics, A Division of the Celanese Corporation of America, 180 Madison Avenue, New York City 16.

LUMARITH
A Celanese Plastic*

9 WAYS TO BETTER POST-WAR PACKAGING



H & D Little Packaging Library—FREE on Request

Packaging war goods — that's the all-important task of H & D today, BUT H & D's war-time activities are bringing a wealth of valuable experiences, and an abundance of new packaging skills and techniques that will have a great and good effect on the progress of post-Victory packaging.

With packaging trends constantly changing and packaging materials under continuous development, H & D published its Little Packaging Library to make your entire packaging procedure more efficient. The "Library" presents the packaging experience of hundreds of manufacturers and contains many real contributions to im-

proved packaging and shipping methods to savings in materials, manpower, machinery and transportation facilities.

Whatever your packaging assignments are today — whatever they will be tomorrow, these booklets will prove of value to you and your organization. The booklets are FREE without obligation — write for as many sets as you need. Address Hinde & Dauch, 4414 Decatur Street, Sandusky, Ohio.

• • •
FACTORIES: in Baltimore • Boston • Buffalo • Chicago
 Cleveland • Detroit • Gloucester, N. J. • Hoboken
 Kansas City • Lenoir, N. C. • Montreal • Richmond
 St. Louis • Sandusky, Ohio • Toronto

For postwar packaging... better see
 AUTHORITY ON PACKAGING . . .

H & D **HINDE & DAUCH**
 CORRUGATED SHIPPING BOXES

PLIOLITE

makes glassine papers
99 85/100 % MOISTUREPROOF!

Without
PLIOLITE
100% Evaporation

With
PLIOLITE
15/100 of 1% Evaporation

Both containers originally filled with 1,500 cc. of water and kept 2½ months at room temperature.

THE simple demonstration pictured above shows the high degree of moistureproofness obtainable with Goodyear's Pliolite coating—not only on glassine but all types of non-porous papers, transparent sheetings, labels and metallic foils used in packaging.

Pliolite's almost complete resistance to moisture-transfer means many new economies in postwar packaging. It means you can use paper in place of costlier containers and still keep moisture where you want it—protect dry products from absorbing dampness, prevent moist products from drying out.

Pliolite is an easily applied solution. It imparts a transparent, high-gloss finish that enhances the appearance of printing and adds eye-appeal. Pliolite-treated papers are heat-sealing, make their own closure, and are handled by your present wrapping or labeling machines.

It can also be combined with wax for direct application to cheese and similar products that require an inexpensive, odorless, tasteless, moisture-retaining wrap.

Pliolite is being used exclusively today for military purposes, but it will pay you to get the full story now in preparation for better peacetime packaging. Write: Plastics and Chemicals Division, Goodyear, Akron 16, Ohio.

PLIOLITE

Pliolite—T. M. The Goodyear Tire & Rubber Company

A PRODUCT OF GOODWEAR RESEARCH

GOODWEAR
THE GREATEST NAME IN RUBBER

Back the
W
th WAR LOAN
for
VICTORY

"I like the extra
protection of
**JOHNSON'S WATERPROOFING
WAXES!**"



• This dry cell battery is but one example of vital war materials that are given wax protection to withstand extreme climatic changes.

Because Waterproofing Waxes seal out moisture, the government requires many manufacturers who send packages abroad to apply these waxes over the wrapping as an extra precaution against damage by water and humidity. Makers of metal parts use them to protect against rust and corrosion. Johnson's Waterproofing Waxes safeguard delicate and vital equipment—for example, radar parts and aerial cameras.

These waxes meet rigid Army and Navy specifications.

Are you packaging war materials?

Tomorrow Johnson's Waterproofing Waxes will be available for all your peacetime packaging. Today the supply is definitely limited, but if you are packaging war materials, you are eligible to use them. Write us for further information.

**These war materials for overseas
shipment are protected by
Johnson's Waterproofing Waxes**

Metal Replacement Parts for planes, tanks, jeeps.

Medicinals to better guard the health of our fighting men.

Surgical Instruments used to save human lives.

Dry Cell Battery Jackets that help keep batteries dry.

Many others, which *must* be protected against damage by moisture.

Made by the makers of **JOHNSON'S WAX**
★ *Speed the invasion with MORE War Bonds! ★*

S.C.JOHNSON & SON, Inc.
Industrial Wax Division, Dept. MP-64, Racine, Wis.

Action



Ampuls of methyl bromide are playing a great part in the war as individual "delousing" units. When an ampul is placed in a bag of clothing and crushed within its canvas sheathing, the methyl bromide completely disinfects the clothing.

These ampuls, made of Neutraglas, are but one of the many types of essential Kimble Glass Containers.... Critical drugs and medicinals could never serve our armed forces without the glass containers that carry them to the point of action.

KIMBLE *Glass* **CONTAINERS**



For Assurance

• • • *The Visible Guarantee of Invisible Quality* • • •

KIMBLE GLASS COMPANY

PROTECTION FOR MANUFACTURER AND USER



PRINTING ON GLASS!

Applied directly to vials, jars, ampules and serum bottles, Heidt Ceramic Printing insures *safe* and *permanent* labelling; gives 3-way protection:

- ... PROTECTION from mistakes in label application.
- ... PROTECTION from counterfeiting.
- ... PROTECTION against loss of labels from bottles.

Ceramic Printing is **STERILE PROOF** and **ACID-RESISTING**! Ceramic Printing is **SCRATCH PROOF**! Not even a nail file or knife blade can scratch the clean, legible printing.

MODERN • SIMPLE • SAFE

You can send your glass containers to us for labelling. Printed matter is speedily applied in any color on bottles of any size or shape. Your printed bottles are returned to you ready for filling.

WE ALSO PRINT ON PLASTICS

Heidt GLASS WORKS
INCORPORATED

1609-15 DeKalb Avenue, Brooklyn 27, N.Y.

ER

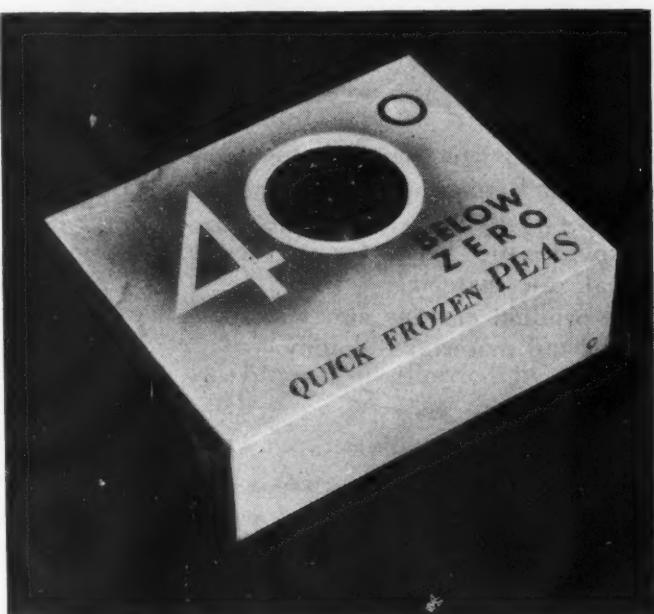
Idea Corner

For Postwar Package Planners

MACARONI THAT FASCINATES... TOWELS THAT TALK... PEAS THAT PEEK...



IDEA NO. 1 A variety show is a good way to bring in the crowds. Why not introduce your whole "family" to the shopping public through showmanship in packaging? Let folks *see*. Stimulate their imagination. Then watch shoppers go *buy*!



IDEA NO. 3 Funny thing about a window—it works both ways. Product peeks out—shoppers peek in. Stimulates impulse buying—lets shoppers see what they're getting. And good appearance gives dealers an extra talking point.



IDEA NO. 2 Perhaps your product could talk as well as these towels. More and more consumers want *informative labeling*—plus visible unit packages that *show the quality of the product*. Then you cash in on human curiosity.

Basic Themes of Postwar Merchandising

Here are six fundamentals that will help to lower postwar distribution costs and speed up turnover. Use them to check your postwar package plans.

1. **SELF-SERVICE:** Emphasis on self-selection and display value.
2. **CONVENIENCE:** Size, shape, quantity, ease of use are predominant factors.
3. **INFORMATIVE LABELING:** Need for concise information, terse selling message.
4. **IMPULSE BUYING:** A high percentage of all buying done on impulse.
5. **PROTECTION:** Adequate protection geared to rapid turnover.
6. **VISIBILITY:** 85% of all buying done through the eyes. Visibility of primary importance in the package of the future.

Would you like to see more postwar packaging ideas? Just write: E. I. du Pont de Nemours & Co. (Inc.), Cellophane Division, Wilmington, Del.

Du Pont Cellophane

Better Things for Better Living . . . Through Chemistry

VISIBILITY...a powerful force in modern merchandising

Heidt
gives

ramic
blade

printed
ze or
filling.

XS
N.Y.



**STRIVING
TO KEEP A
PLACE IN
THE SUN?**

It may be a good time to stick to essentials. But it is even a better time to keep intact the assets of sound cartoning. Remember that you want to hold or gain a place in the sun.

Ridgelo clay coated boxboards provide the basis for attractive designs . . . with a minimum of critical raw materials.

Use this boxboard for your essential-product cartons and you have the two-fold satisfaction of fine packaging and material economy.

KEEP DOING YOUR SHARE IN
THE WASTE PAPER CAMPAIGN

Ridgelo
CLAY COATED

BOXBOARDS

MADE AT RIDGEFIELD, N. J.
BY LOWE PAPER COMPANY

Representatives: Bradner Smith and Company and Mac Sim Bar Paper Company, Chicago • H. B. Royce, Detroit
Gordon Murphy and Norman A. Buist, Los Angeles • A. E. Kellogg, St. Louis • Philip Rudolph & Son, Inc., Philadelphia

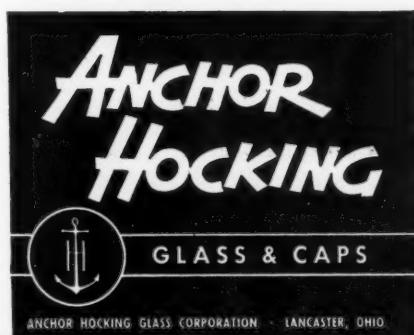
WHAT ARE THE ADVANTAGES OF THE GLASS PACKAGE FROM AN ADVERTISING MAN'S STANDPOINT, MR. SHEEHAN?

IT'S A MOST ATTRACTIVE, PROTECTIVE AND CONVENIENT PACKAGE



The glass package capitalizes on the natural attractiveness and appetite appeal of your products; promotes impulse sales; and facilitates recognition and acceptance of your products. Highly sanitary and protective, it brings your products to the consumer in perfect condition and keeps them that way until entirely consumed. Strong, lightweight Anchor Hocking containers easily withstand the hard knocks of handling and transportation. Convenient access to contents is afforded by all Anchor Caps. For products consumed bit by bit over a period of time, the Anchor Amerseal Cap is ideal—an airtight, leakproof closure that comes off or goes on with a swift quarter turn, yet reseals as effectively the hundredth time as the first.

J. W. SHEEHAN, one of Anchor Hocking's ablest and most popular men, has been a member of the Anchor Hocking family for 16 years.



"Meet Corliss Archer" every Saturday afternoon, entire coast-to-coast network CBS



Glue?

Swift makes all kinds



And for fifty years, we have been working with glue users—getting the "know how" that has enabled us to help a lot of people this year, who had new and tough gluing jobs.

While some of the glues we make are scarce and a few may be unobtainable for the duration, we can still supply a good glue to help out on practically every gluing job.

Of course, the fact that we make all of the major types of glue—both vegetable and animal—is a big factor in our being able to meet today's changing needs. It means, too, that we are better able to help you in each gluing operation—whatever it may be.

Is there any way that we can be of assistance to you?

for all uses including:

- Bookbinding
- Bottle labeling
- Carton sealing
- Case sealing
- Folding boxes
- Laminating
- Leather goods
- Loose leaf binders
- Magazine coverings
- Mountings
- Padding
- Remoistening
- Spreader sets
- Tight wrapping
- Tin labeling
- Tube winding
- And many others

Yes, Swift makes all kinds of glues. AND among them is the *one* kind with just the right adhesive quality, the right operating efficiency, for your particular requirements.

SWIFT & COMPANY
CHICAGO 9, ILLINOIS

Factories at: Chicago, Ill., Harrison, N. J.,
South San Francisco, Calif., St. Joseph, Mo., Omaha, Neb.

Stocks carried at many of our branches and plants throughout the U. S. A.

Because People Are Human

Beauty Sells



PACKAGES BY RITCHIE PROVE THAT BEAUTY SELLS

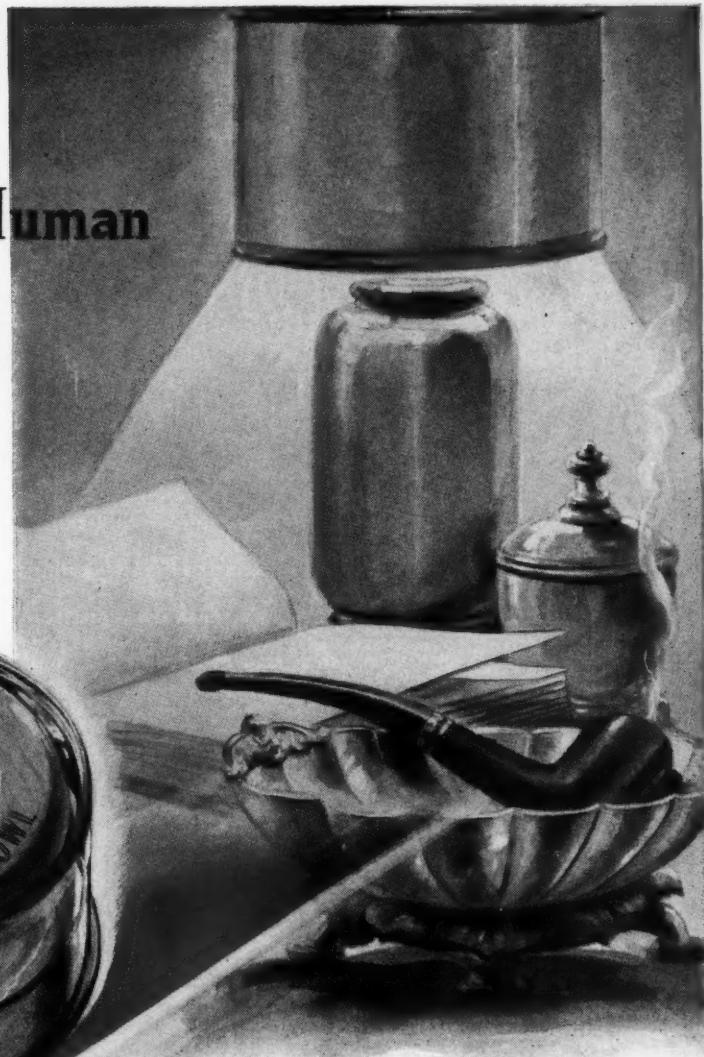
People shouldn't judge by appearances. But they do! They shouldn't buy things they'll have to sweat to pay for, or a car that strains the budget—just because they're "better looking." They shouldn't select a product, from among its competitors, because it comes in a better looking package.

But—they DO!

Beauty influences their choice in *everything* from motor cars to mates. And while manufacturers can't *change* human nature, they do *capitalize* on it. That's why most products, from washing machines to radios, have been redesigned, not once but many times—and always to more pleasing forms, proportions, colors and finishes. Not to please manufacturers' fancies—but because *beauty SELLS!*

Beauty—in packaging—SELLS!

That is why, in *every* Package by Ritchie—whether it contains an exotic perfume or dry-battery cells—you will always find, in its lines, in its proportions, color or design, a strong eye-appealing quality—elements of beauty.



HOW TO GET A PACKAGE THAT SELLS

Let Ritchie design a package for you and it will have beauty *more than skin deep*. It will have the right material and structure for its job. It will be practical, convenient to use, easy to handle, to stack and display. It will proclaim your product identity. It will be memorable and attractive. And Ritchie's expanded, war-developed facilities for volume production assure its low cost. Let Ritchie demonstrate how you can get a better selling package. No obligation. Write us today.

W. C.

Ritchie
AND COMPANY

8845 BALTIMORE AVENUE • CHICAGO 17

Set-Up Paper Boxes • Fibre Cans • Transparent Packages

NEW YORK • DETROIT • LOS ANGELES • ST. LOUIS • MINNEAPOLIS

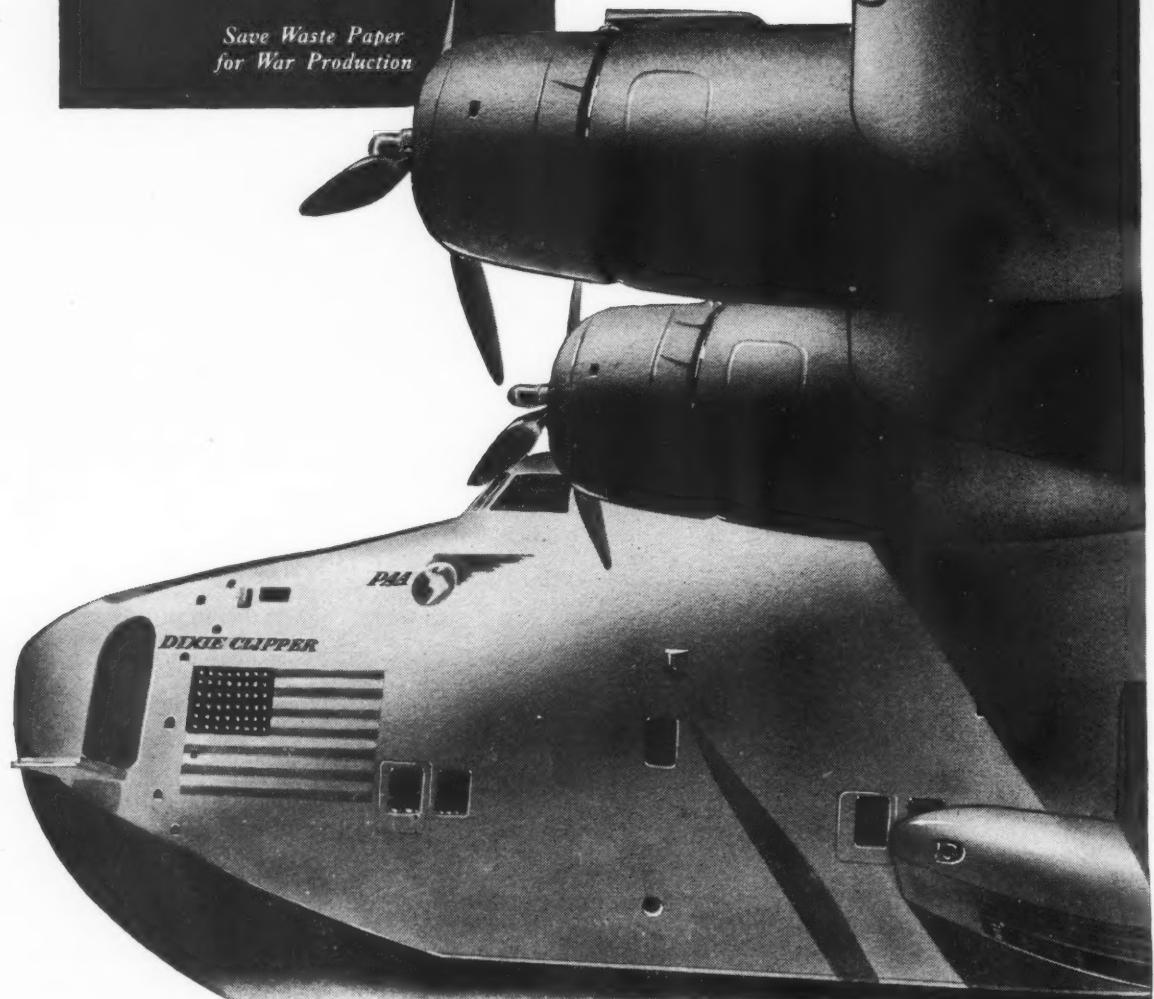
GAIR BY AIR

SAVES WEIGHT—SAVES SPACE
SAVES PACKAGING COST

Our new booklet "Air Cargoes" covers all these and many more post-war shipping factors; including official Air Express information plus maps and time data for your shipping of the future. Write for this free informative 44-page booklet.



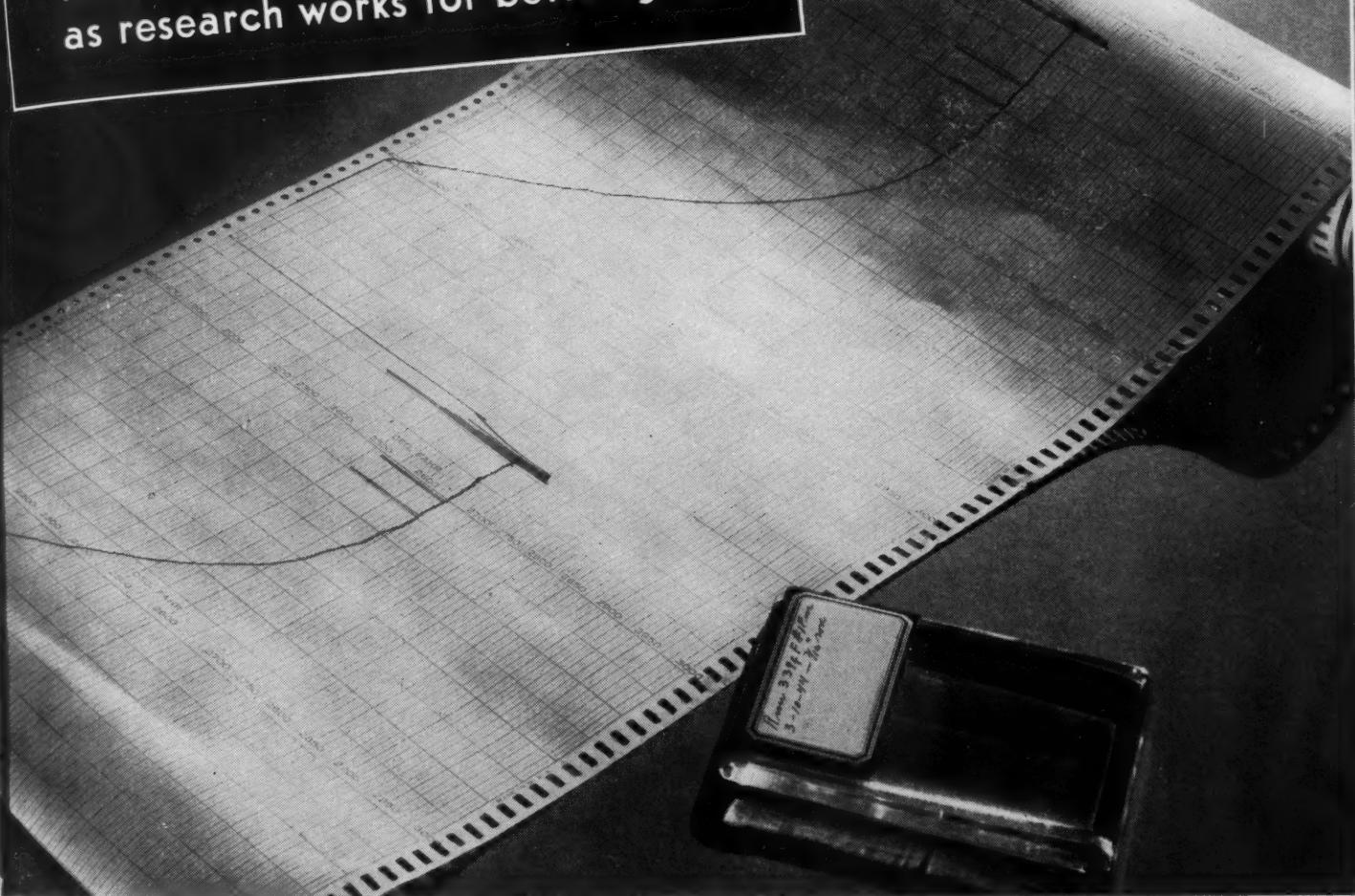
*Save Waste Paper
for War Production*



ROBERT GAIR COMPANY, INC., NEW YORK, Gair Company, Canada, Limited, Toronto • Folding Cartons • Boxboards • Fibre and Corrugated Shipping Containers

"ROAD MAP" FOR A GLASS FURNACE

Machines and men hew the line as research works for better glass



THE temperature in Armstrong's experimental glass furnaces travels a long road . . . and must be at a certain place at a certain time. In the melting of an experimental batch, it rises from room temperature to a predetermined limit—sometimes above 2600° F.

A glass chemist often has a series of "runs" that he wants heated at exactly the same rate. This means that the furnace must retrace identically every step of its 2600-degree journey many times. For the Armstrong chemist, this feat is not so difficult as it sounds. He simply chooses a "road" for the furnace!

This chart indicates where the temperature of the furnace should be every minute of its heating

schedule. The chart is placed in the furnace temperature recorder, and the furnace temperature is regulated so that it follows the route exactly. So precisely is its rise controlled that the temperature may be steered over the same path any number of times without varying more than a few degrees from its "itinerary" at any time!

Armstrong's chemists, physicists, and engineers employ many other equally precise controls in their glass laboratories. Their experience

and skill, plus the aid of the latest in equipment, have been major factors in establishing and maintaining Armstrong's reputation for top-quality glass.

Many interesting articles about the trained men and women who make fine glass are contained in Armstrong's interesting booklet, "Men and Glass." For your free copy, write Armstrong Cork Company, Glass and Closure Division, 5906 Prince St., Lancaster, Pennsylvania.

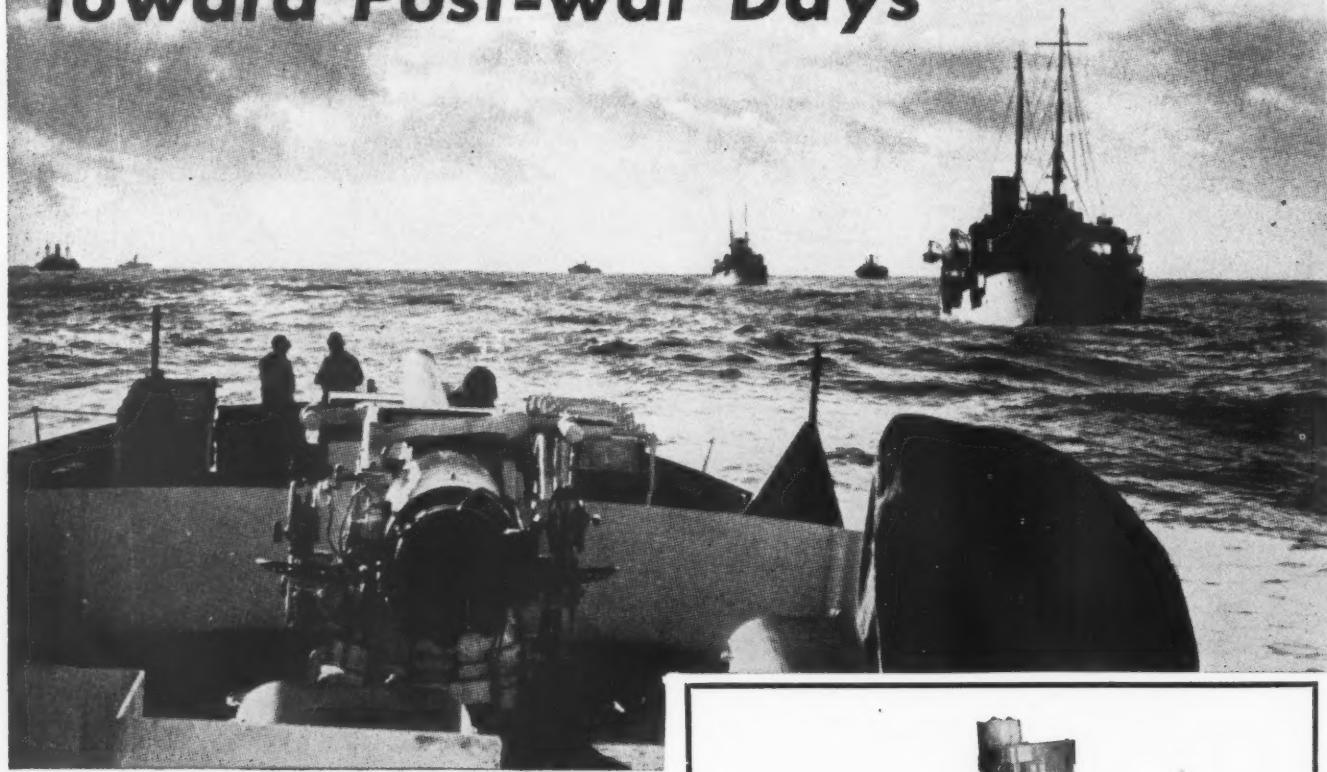


ARMSTRONG'S GLASS

and ARMSTRONG'S
CLOSURES



LOOKING AHEAD toward Post-war Days



Today, our facilities, like those of so many others, are filled to capacity turning out material that is helping bring victory and peace closer. For that reason we cannot always give the service which has built the 'S & S' reputation over the past 40 years.

We are doing our best, though, to help our many friends and customers all we can. But, if you have to wait for repair parts or even new machines, we hope you will understand.

In the meanwhile, our engineers and designers are working steadily so the S & S machines you will want after the war will serve you better.

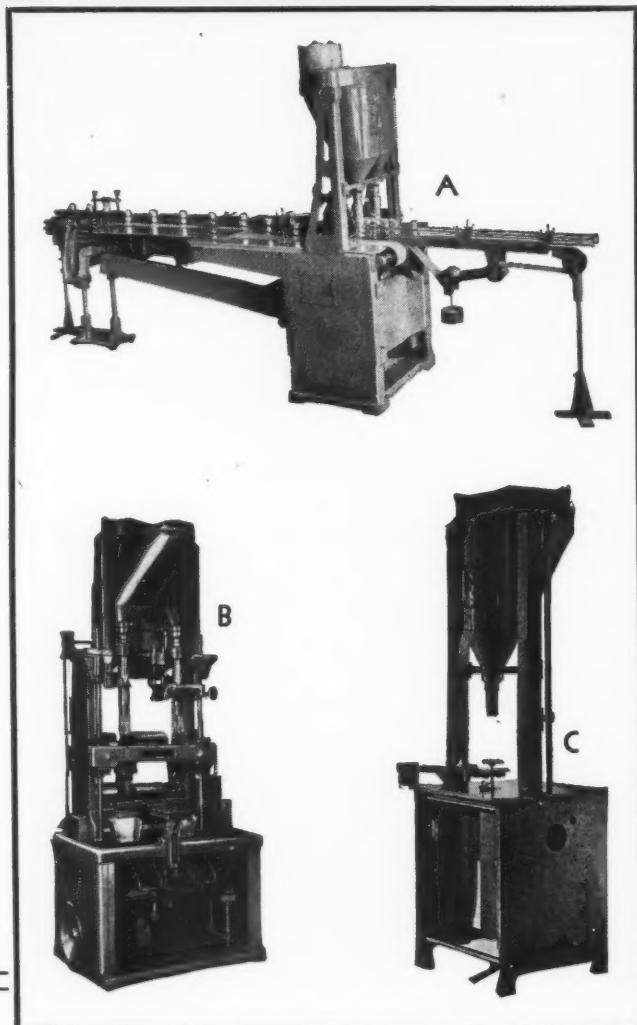
- A. S & S Two Station Filling Machine.
- B. S & S Transwrap Machine. Forms—Fills—Seals. Uses Cellophane or other heat sealing films.
- C. S & S Universal Filler. For powders, pastes or granular material.

STOKES & SMITH CO

Frankford, Philadelphia 24, U. S. A.

FILLING • PACKAGING • WRAPPING MACHINES

Speeds to suit your needs—15-30-60-120 per minute





WRAPS for
CANDY, SPAGHETTI
MACARONI, BACON, BREAD
CAKE, FISH, CIGARS and other products
...up to four colors

Cleanly Printed

on CELLOPHANE, ACETATE and
FOIL PAPERS...rolls and sheets

Facilities of our design department available for
your present packaging problems—and for post-
war planning. No obligation. Inquiries invited.



BY
SYLVANIA INDUSTRIAL CORP.

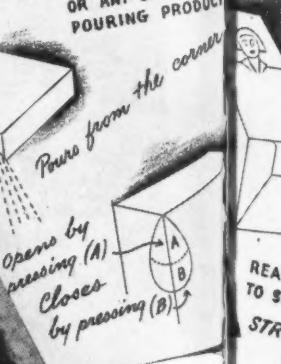
ROTOLITH Ltd
15 West 18th Street
New York II, N.Y.

Merchandising and packaging executives:

It's time to s



POURING SPOUT CARTON ISPL
IDEAL FOR GRASS SEED, BABY
FOOD, SOAP POWDER, CEREAL
OR ANY OTHER FREE
POURING PRODUCT

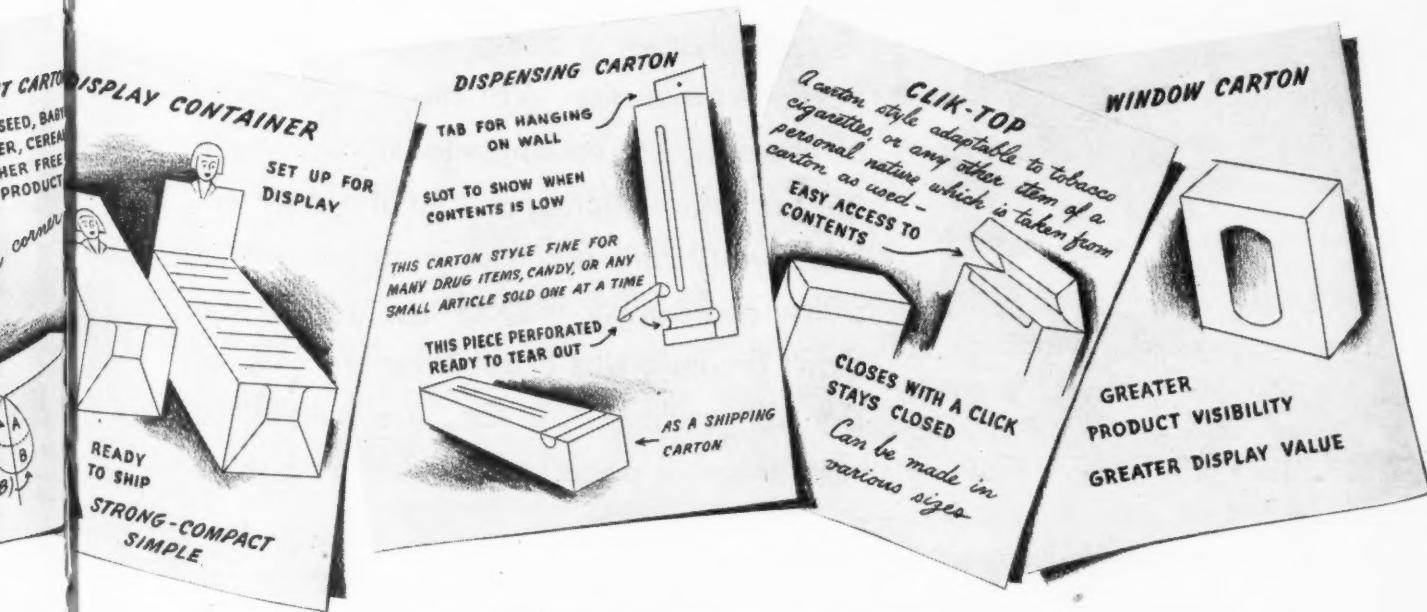


set your clocks ahead to postwar time!

FORWARD-LOOKING executives in many plants are already operating on postwar time. Their plans are being made...products are being developed...new folding cartons, dispensers and displays are being perfected...with an eye to postwar competition.

Your product is going to need all the extra display value, extra utility, extra eye-

and-buy appeal that can be designed into its carton. A lot *more* than you'll be able to *get* if you wait until victory is in plain view and the big rush starts. So set *your* clock ahead, *now* to postwar time...while Gardner-Richardson packaging engineers and designers *have* the time to design the maximum competitive advantages into your postwar folding cartons. Get in touch with us, today.



New cartons for new products. Modernized cartons for old products. Improved utility and protective qualities. Improved performance in assembling, filling and sealing machines. Those are problems we're tackling, every day—for executives who've set their clocks ahead to postwar time. We're coming up with the answers for them. We'll come up with the answers for you.

The GARDNER-RICHARDSON Co.

Manufacturers of Folding Cartons and Boxboard, Middletown, Ohio

Sales Representatives in Principal Cities: PHILADELPHIA • CLEVELAND • CHICAGO • ST. LOUIS • NEW YORK • BOSTON • PITTSBURGH • DETROIT



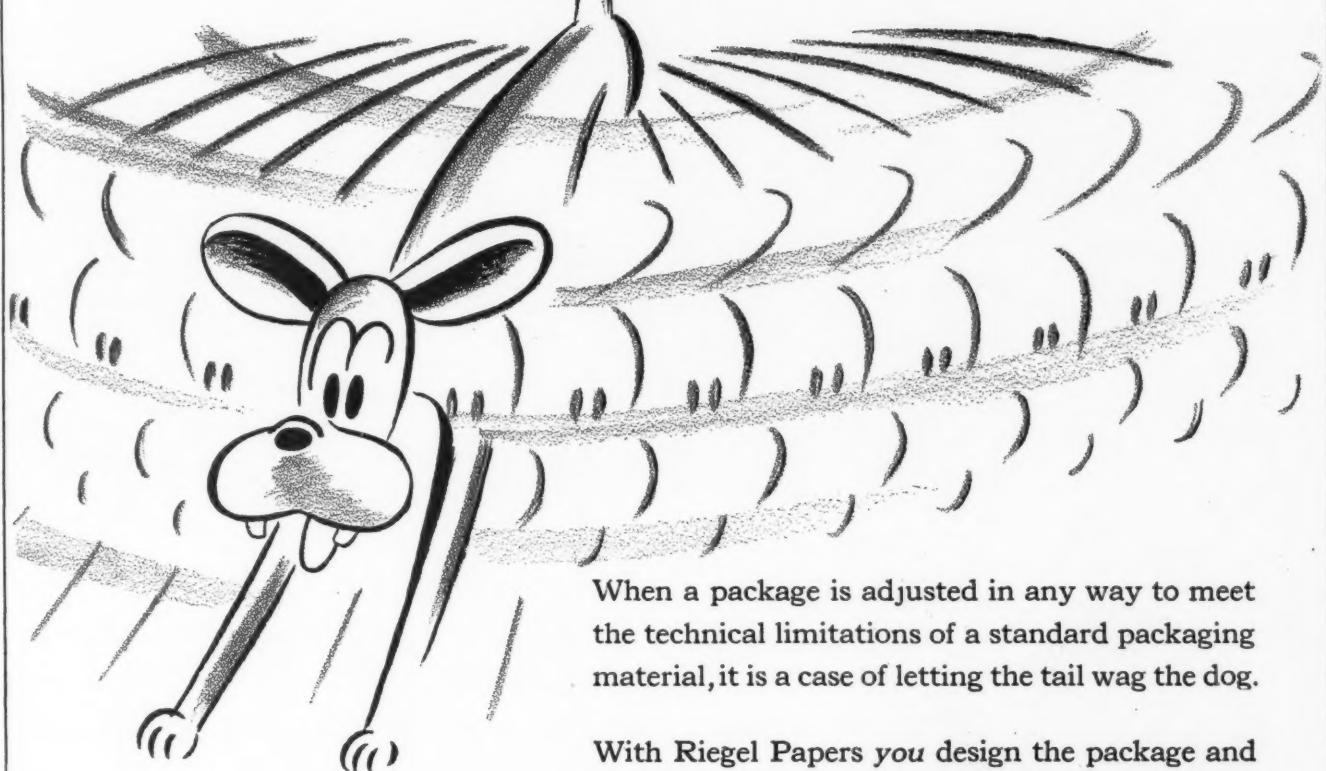
A new chapter is being written today on package production. Wartime changes, born of necessity, are causing vital innovations in the package of tomorrow. As the story unfolds, you'll find practical improvements in utility, and beauty in packages where you didn't dream it was possible before. We, of the Sefton Fibre Can Co., are helping to write this new page in the industry's history.



THE PACKAGE OF TOMORROW

DISTRICT OFFICES: Los Angeles San Francisco Denver Tampa Chicago Des Moines New Orleans Boston Detroit Kansas City St. Paul
Omaha New York Cincinnati Cleveland Oklahoma City Pittsburgh Memphis Nashville Dallas Houston Salt Lake City Seattle

DON'T LET THE *Tail* WAG THE DOG



When a package is adjusted in any way to meet the technical limitations of a standard packaging material, it is a case of letting the tail wag the dog.

With Riegel Papers you design the package and outline your technical requirements. It's our job to produce a paper that will meet your needs from every angle — protection, economy and production efficiency.

A bandage wrap, tack sealed, that heat seals completely during sterilization. Uses a special Diafane grade.



Every one of our 230 grades may be varied in many ways. Riegel's Diafane, for example, can be opaque or transparent, single, double or triple laminated, white or colored, heat-sealing or glue-sealed, highly moisture-proof or not moisture-proof at all — but always made to the exact requirements of the product that employs it.

Although nearly all our production is devoted to essential industries, now is the time to see how the work we are doing for others today can help you tomorrow.

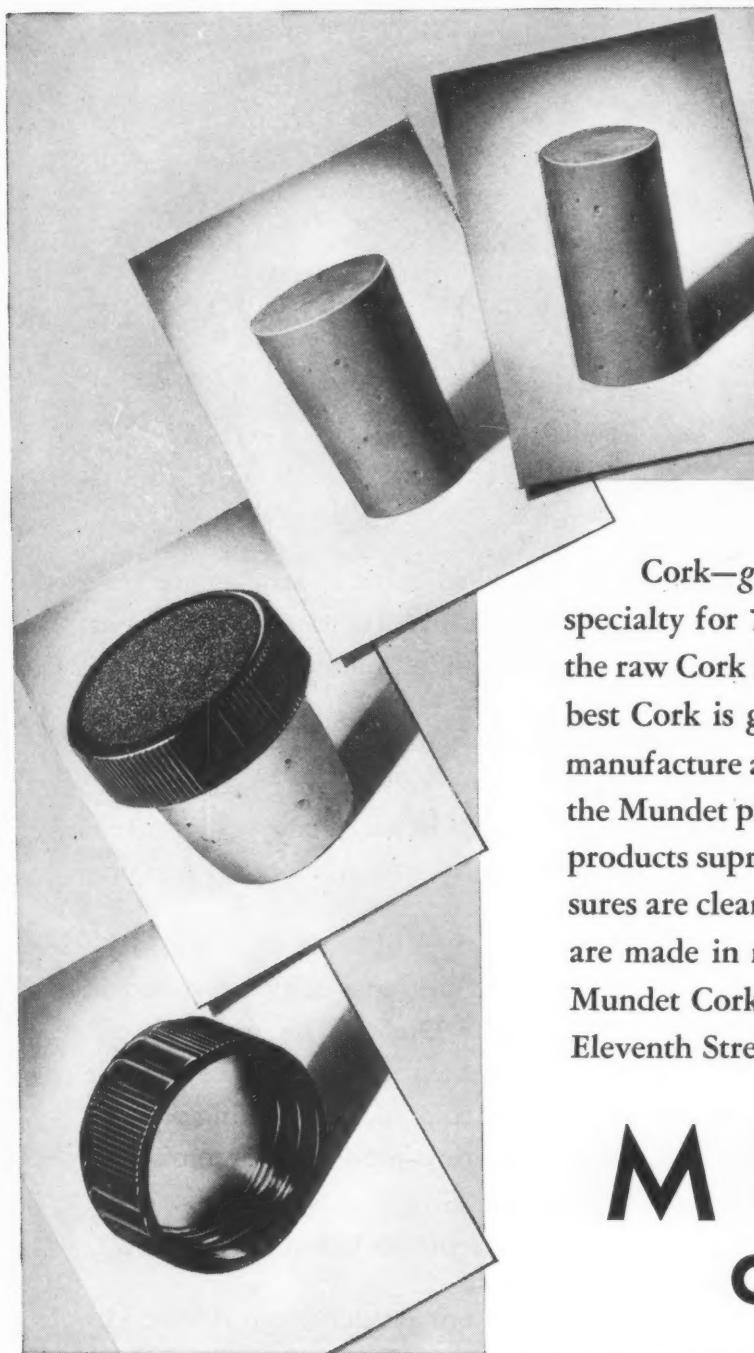
RIEGEL PAPER CORPORATION

342 MADISON AVENUE • NEW YORK 17, N. Y.

99

MUNDET CLOSURE SERVICE

We have been Solving Sealing Problems for Seventy-nine years



Cork—*good sealing* with Cork—has been a Mundet specialty for 79 years. From harvesting and grading of the raw Cork in Mediterranean lands, where the world's best Cork is grown, to regrading of the raw materials, manufacture and final inspection of the Cork Closures in the Mundet plant, every precaution is taken to give your products supreme sealing protection. Mundet Cork Closures are clean, super-resilient and precision-sized. They are made in many types for specific requirements. . . . Mundet Cork Corporation, Closure Division, 65 South Eleventh Street, Brooklyn 11, N. Y.

MUNDET CLOSURES

THERE'S A MUNDET OFFICE OR REPRESENTATIVE NEAR YOU

ATLANTA
339-41 Elizabeth Street, N. E.

BROOKLYN 11
65 South Eleventh Street

CHICAGO 21
135 West 63rd Street

CINCINNATI 2
427 West 4th Street

DALLAS 1
505 Southland Annex

DENVER
The Stone-Hall Co.

DETROIT 26
335 West Jefferson Avenue

HOUSTON 1
Commerce and Palmer Streets

JACKSONVILLE 7, FLA.
1212 Mary Street

KANSAS CITY 7, MO.
1428 St. Louis Avenue

LOS ANGELES 31
1850 North Main Street

LOUISVILLE 10
Kentucky Bottlers Supply Co.

NEW ORLEANS 16
315-325 N. Front St.

PHILADELPHIA 39
856 N. 48th Street

ST. LOUIS 4
2415 South Third Street

SAN FRANCISCO 7
440 Brannan Street
and J. C. MILLETT CO.

IN CANADA: Mundet Cork & Insulation, Ltd., 35 Booth Avenue, Toronto

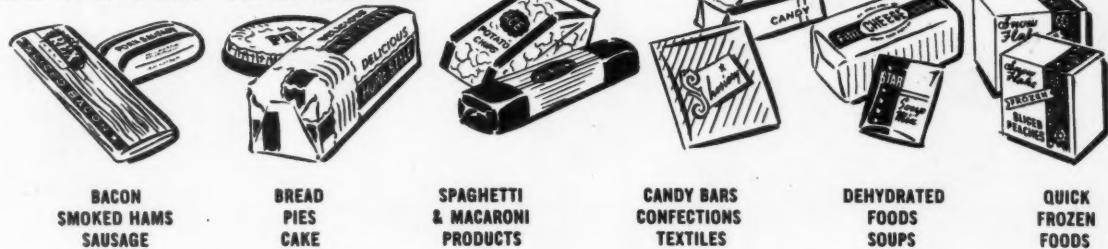


Fill 'er Up! . . .

What a day that will be. No ration stamps, no priorities, no restrictions or shortages of this and that . . . just "Fill 'er Up" and let's go! ★ The point is, will you be ready to go? Going places entails plans . . . preparations. And getting ready for the brutally severe competition of the postwar era is a job that

cannot be started too soon. ★ This organization is ready to work with you now on the new, better designed, more dynamic packages you will require to keep your product on the "go" during the months ahead when you must reestablish your beachhead in the fight for consumer markets. A consultation involves no obligation.

THERE IS A MILPRINT PACKAGE FOR



PRINTED Cellophane, Pliofilm, Glassine, Aluminum Foil, Coated and Laminated Papers, in all forms including Sheet Wraps, Rolls, Pouches, or Specialty Bags. ★ Revelation Bread Wraps, Specialty Folding and Window Cartons, Counter Displays, Simplex Pie and Cake Units.

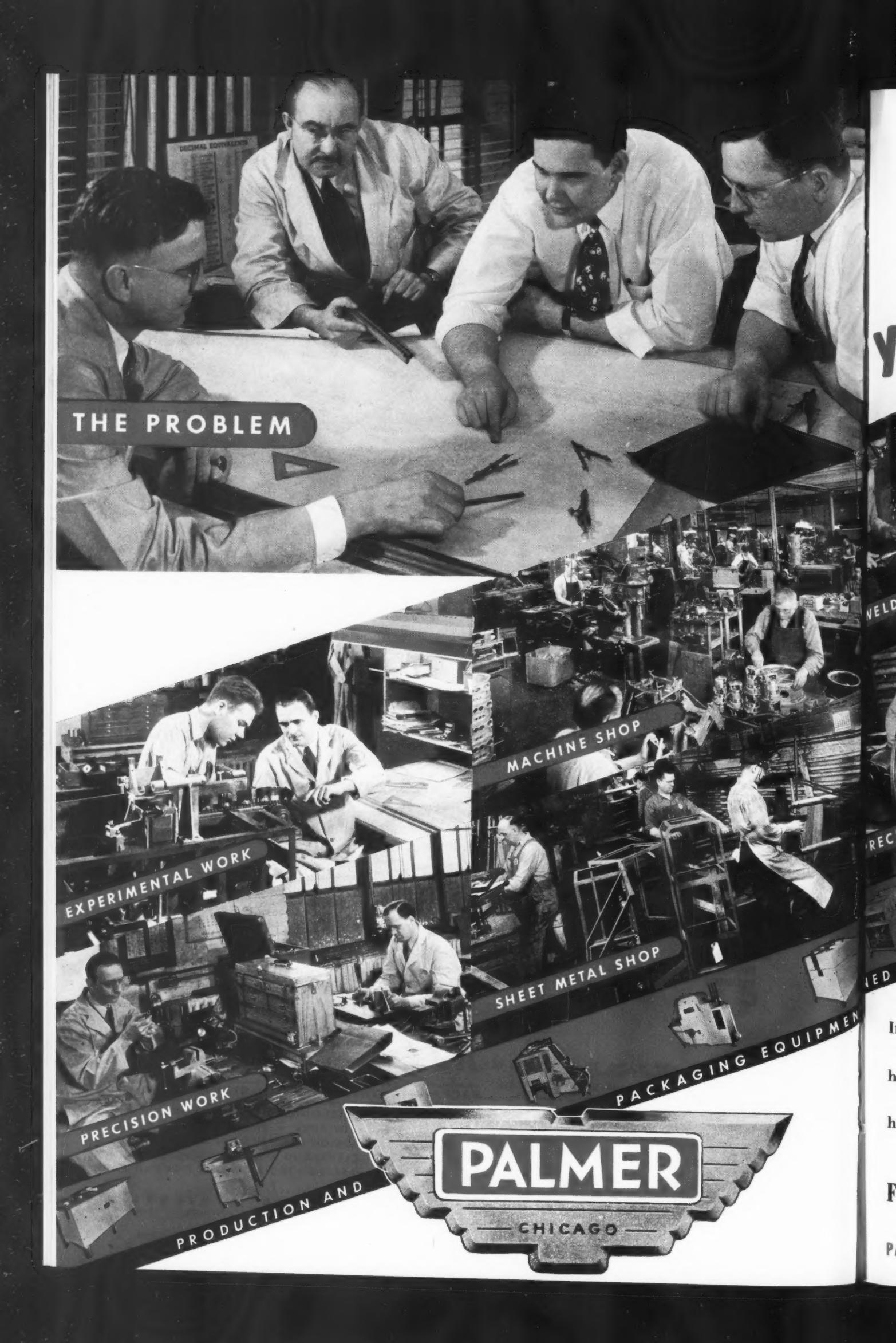
MILPRINT Inc.

PACKAGING CONVERTERS • PRINTERS • LITHOGRAPHERS

PLANTS AT
MILWAUKEE
PHILADELPHIA
LOS ANGELES

SALES OFFICES IN — SAN FRANCISCO • CHICAGO
NEW YORK • PHILADELPHIA • LOS ANGELES
BOSTON • ATLANTA • ST LOUIS • MINNEAPOLIS
CLEVELAND • CINCINNATI • PITTSBURGH
DALLAS • INDIANAPOLIS • GRAND RAPIDS

SPECIALISTS IN DISPLAY PACKAGE DESIGN AND DEVELOPMENT



THE PROBLEM



PRODUCTION AND

MACHINE SHOP

SHEET METAL SHOP

PACKAGING EQUIPMENT

PALMER

CHICAGO

YES! FROM START TO FINISH . . .



....from the Problem Itself,
to the Equipment in Production

If it is a packaging problem with extraordinary requirements to meet, or perhaps a difficult handling problem to solve, labor to save, or costs to lower—Palmer specialists can probably help you. Discussion with us now may speed the solution later.

FRANK D. PALMER, INC., 528 N. Western Ave., Chicago 12, Ill.

PACKAGE DEVELOPMENT LABORATORY — SPECIAL MACHINERY MANUFACTURERS





You buy it **LOW**

You sell it **HIGH**

—The World's Best Investment

Once more you have your chance to back up the men on the beachheads, to throw your weight behind the grim drives.

You're asked for 16 billion dollars this time — the biggest war loan of them all.

Certainly, if past performance is a fair indication, you'll absorb every cent of it. It will be harder this time. But we know you'll do it.

First, because you want to help the sons and daughters of America who are playing for keeps — putting up their lives as collateral for your security.

Second, because you know that our country is not merely in good financial condition — it is magnificently solvent in all the broadest, widest meanings of the word.

The bonds and stamps you buy today are actually the world's best and safest investments. Take another cut in your little luxuries. Take another reef in your budget. Scrape the bottom of the bank account. Back the attack. Buy bonds now. **BUY MORE THAN BEFORE!**

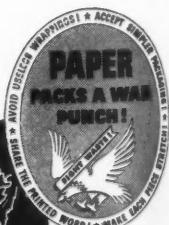
This Oxford message is just one small example of paper's role in the Fifth War Loan Campaign. It is one of 700,000 ways in which paper is serving in this war.

OXFORD PAPER COMPANY

230 Park Avenue, New York 17, N. Y.

WESTERN SALES OFFICE: 35 E. Wacker Drive, Chicago 1, Ill.

MILLS AT: Rumford, Maine; West Carrollton, Ohio





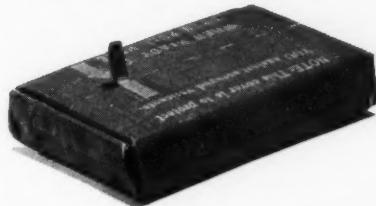
It takes
Alcoa Foil
to protect
his protection

Wrapper for Individual Protection Covers consists of aluminum foil laminated between cloth and acetate.

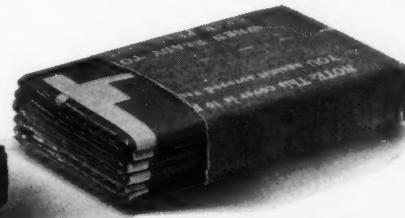
Problem: Capes for protection against blister gas had to be packaged in a way that would positively prevent moisture-vapor transmission.

Solution: Alcoa Foil proved to be the answer, keeping the capes in the as-packed condition in all climates.

This is one of the many war packaging developments that points toward new civilian uses for Alcoa Aluminum Foil, come peace. Does it give you an idea for imagineering about your future packages? Any way we can help you? ALUMINUM COMPANY OF AMERICA, 2129 Gulf Building, Pittsburgh 19, Pa.



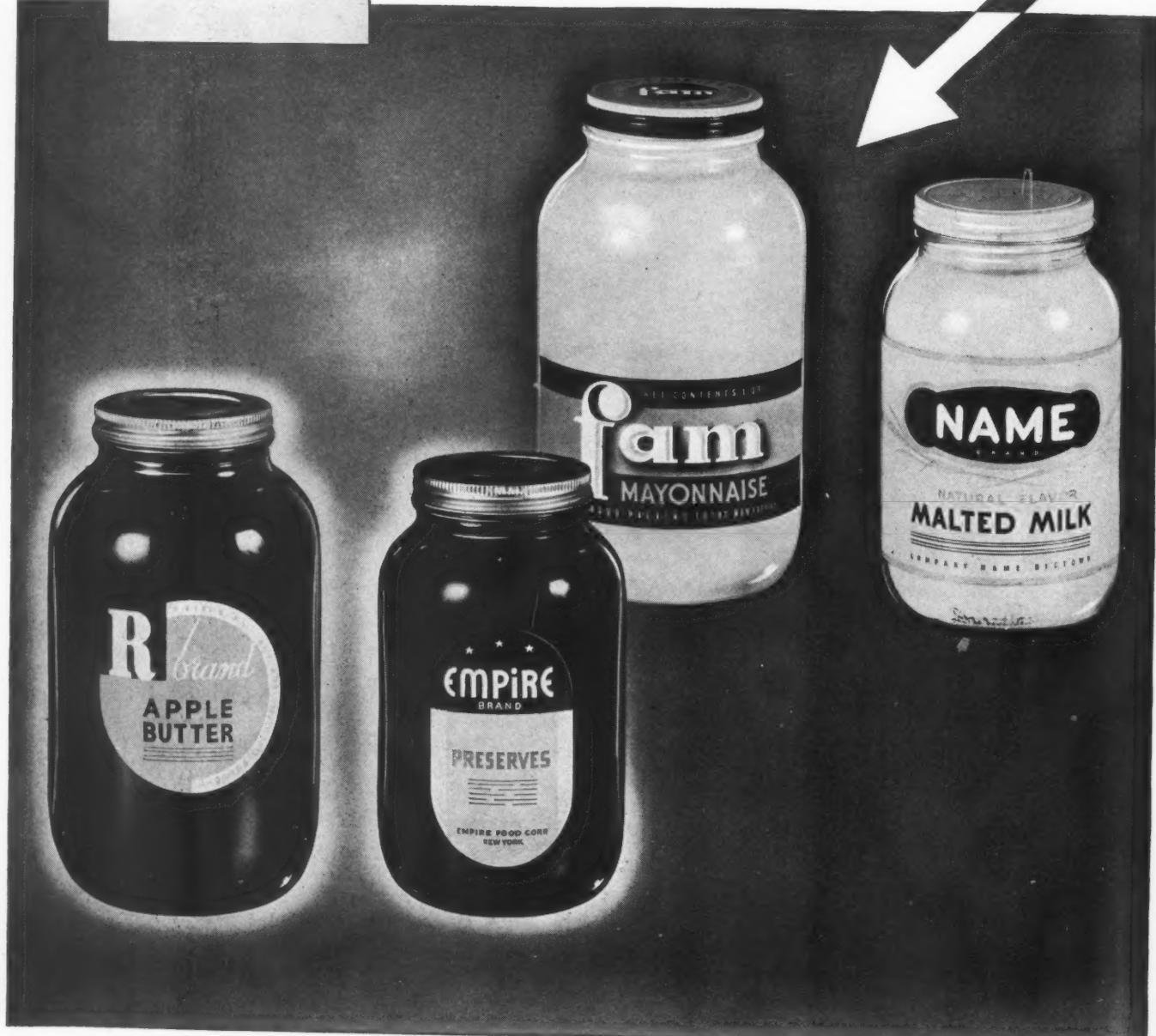
With the ends and lap tightly sealed, package is truly moistureproof. Easily opened by tearing tape.



ALCOA Aluminum Foil

You have
to
look hard

Duraglas
YOU CAN SELL IT
BETTER
IN GLASS





to see the bottles are similar

THERE IS MAGIC IN LABELS.

Magic you need while government restricts jar shapes and sizes.

Magic that will enable you to continue to benefit from the economies of standard jars in meeting the hard competition of post-war days.

Duraglas Customer Service works with users of Duraglas jars and designers of labels, to produce the effect you instantly feel when you glance at well-stocked shelves:—

"What a lot of different products!"

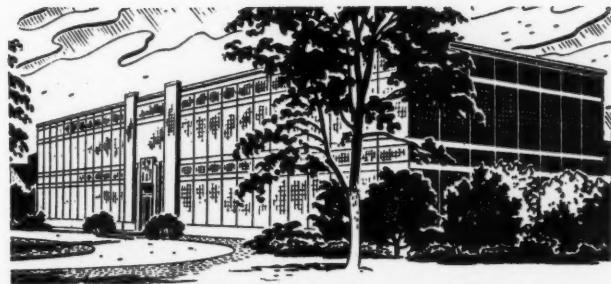
"How that brand over there stands out!"

Close inspection proves that shape and size of many of the jars are similar. The magic of individuality is in labeling. Remember the value and the savings of artistically dressed standard jars when you plan your post-war operations against stiff post-war competition.

* * * *

TUNE IN—"BROADWAY MATINEE," Mondays through Fridays, CBS, 4 P.M., Eastern War Time.

**OWENS-ILLINOIS
GLASS COMPANY
Toledo, Ohio**



1. America's most completely equipped container research laboratories—located at Toledo, Ohio and San Francisco, California.
2. The "know how" resulting from more products going to market in Duraglas containers than in any other brand of glass.
3. Twenty strategically located plants with the most modern production facilities.
4. Duraglas Customer Service from the production line to the consumer's mind. Quality Control . . . Packaging Research . . . Merchandising and Sales Promotion . . . National Advertising in leading magazines reaching millions of men and women . . . "Broadway Matinee," complete Columbia Coast-to-Coast Network—Five times a week—

*All designed to help you sell your products
in Duraglas containers*





PACKAGE ENGINEERING
for
POST-WAR SALES

No. 2 LAMINATED
PAPER CONTAINERS

PROTECT YOUR PRODUCT AND CUSTOMERS WITH GREASEPROOF PACKAGES

IF YOUR PRODUCT contains shortening or natural oils, you'll be interested in the post-war possibilities of Sutherland laminated paper containers. Lamination gives you a grease-proof inner liner and a regular carton exterior. The inner liner prevents grease from marring package appearance and soiling customer's clothing or car seats. The outer surface takes printing beautifully and reproduces your package design in the full brilliance of sparkling colors.

While we can't handle new business now, we can *plan* your post-war packages at once so you'll be ready to go the minute conditions permit!



SUTHERLAND PAPER COMPANY

KALAMAZOO 13D, MICHIGAN

CT
RS
OF
ES

or
ost-
ated
in a
ular
ents
ar-
ing
kes
ces
ull
rs.
us-
our
so
he
nit!



...in Smart Salons OR SMALL SHOPS

Wherever they buy, women naturally are attracted by brilliant, skillfully-designed packaging . . . which is why Maryland Bottles and Jars are so highly regarded in the drug, cosmetic and other fields. In planning your attack on postwar markets, keep posted on tomorrow's new "Designs for Selling" in Maryland Glass.



Maryland BOTTLES & JARS

MARYLAND GLASS CORPORATION, BALTIMORE-30 . . . 270 Broadway, NEW YORK-7 . . . Berman Bros., Inc., 1501 S. Laflin St., CHICAGO-8 . . . H. A. Baumstark, 4030 Chouteau Ave., ST. LOUIS-10 . . . J. E. McLaughlin, 401 Lock St., CINCINNATI-2 . . . Owens-Illinois Pacific Coast Co., 135 Stockton St., SAN FRANCISCO-19 . . . Aller Todd, 1224 Union Ave., KANSAS CITY-7 . . . S. Walter Scott, 608 McCall Bldg., MEMPHIS-3.

*Let's ask REGENT to
design Displays to sell
our POST WAR products*



Militarily D-day stands for invasion. Regent's foresighted designers are thinking of that future business D-day when manufacturers will be invading new, and re-capturing their prestige in old territories.

Maybe that D-day sounds like a far off detail to you, but to Regent it means a time when they will be pressed to produce displays. Displays that will set off your post-war products . . . displays that will be colorful and sales-inviting. Displays that should be planned now—so they will aid in firmly establishing a beach-head on that competitive battle line when that post-war business D-day arrives.

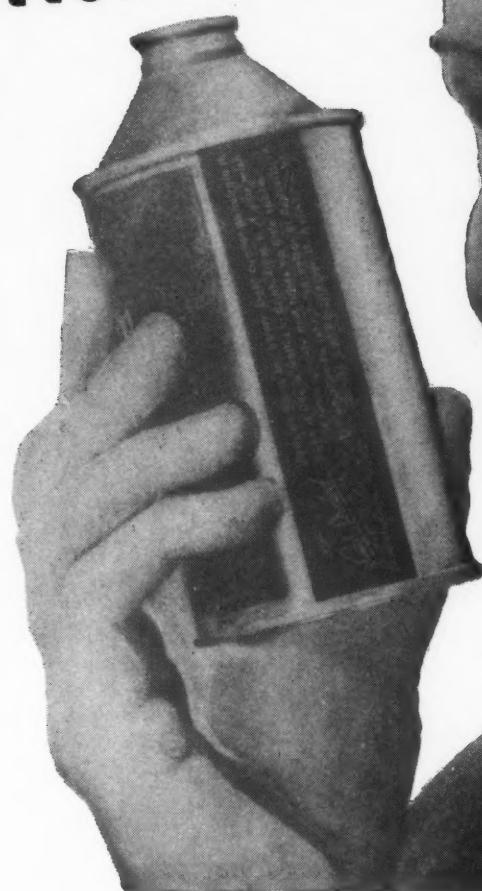
Why not be prepared? Regent displays have sold millions of dollars worth of goods in the past. Let Regent's market-wise designers make up a display which will put across your post-war products.

★ Write Us Today About Your "Tomorrows" Display

Regent
DISPLAYS

★ REGENT SPECIALTIES, INC.
268 Lyell Avenue
ROCHESTER 6, NEW YORK

The can that kept 12 men alive 44 days
may serve you
better beer!



ers are
will be
gent
isplay
colorfu
ey wi
tle lin
dollar
s make
ay
C.
K.

● They had no water, no food. Yet they drifted 44 days in a lifeboat and lived to tell this story.

One thing saved them—a little can. What was in it?

An old friend of yours — beer! There were 960 cans of beer in the boat. It slaked their thirst and kept them alive.

You'll find American beer wherever you find U.S. troops overseas, from the Arctic to the jungle. Much of it's packed in cans that protect it from light and breakage. That's why you can't get beer in cans.

But, someday, you'll get your fa-

vorite beer with true brewery flavor in your favorite container—the easy-to-open Cap Sealed Can. And it may be even better than today's fine brews. Don't think the brewing industry is standing still, either.

To do our war job, we've developed new ideas and new skills, too. That's why as we look ahead, we see *new and better things in Continental cans*.

POST-WAR PLANNING: We'll be glad to discuss future uses or improvements of your product or package and help in your post-war planning. Write Post-War Planning Dept., 100 E. 42nd Street, N.Y. C., or Continental Can Company of Canada, Limited, Montreal.

CONTINENTAL CAN COMPANY
NEW AND BETTER THINGS IN CONTINENTAL CANS

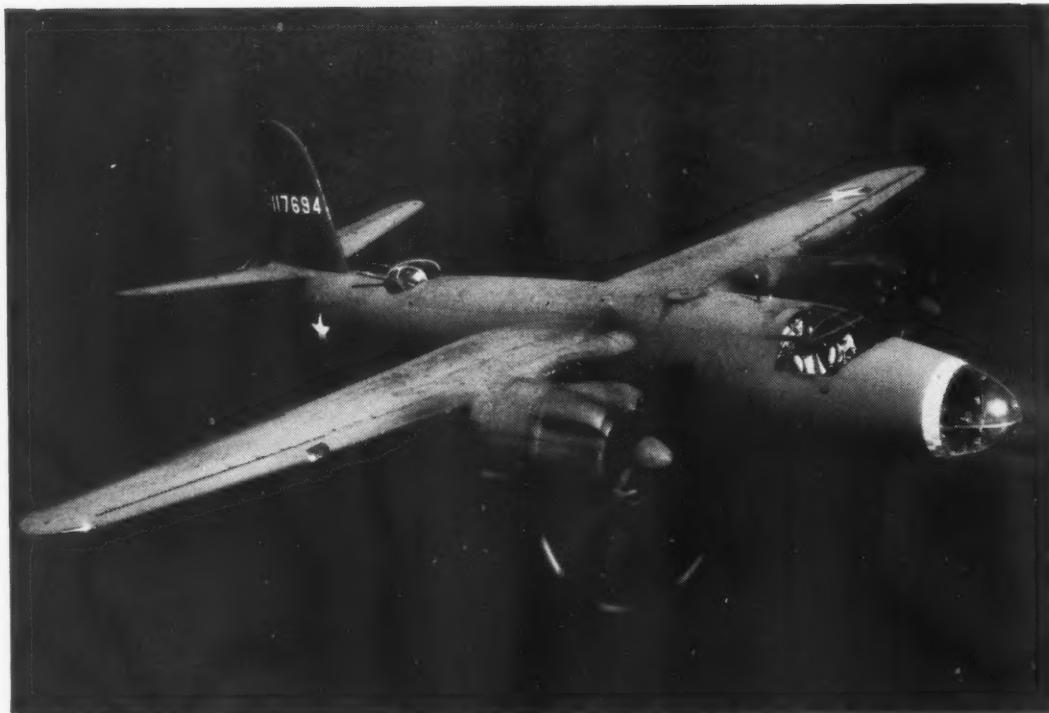
Awarded to Plant 78,
Chicago • Illinois



SAVE TIN CANS—HELP CAN THE AXIS

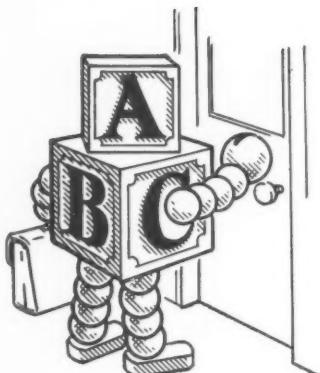
Helping to Package Victory

Official Photo
U. S. Air Forces



Close-up of a Martin B-26 Marauder Medium bomber making its run over the target, which in this instance is a Nazi fighter airdrome.

Hangars, buildings, and dispersal areas were blasted by dozens of sticks of 300 lb. bombs from the U.S. groups making this raid.

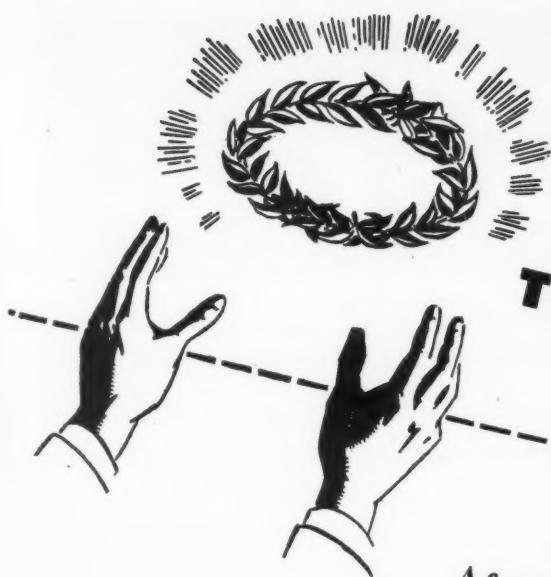


Come V-day, Abie See,
the ABC man, will be
knocking at your door.

ABC Factory wheels are humming with war production today . . . producing vital components for B-26 Marauders as well as precision parts for heavy ordnance.

But, when Uncle Sam flashes the green light for peace-time production, ABC will be ready with new and better packaging machinery . . . skillfully designed and engineered, fully tested . . . that we're sure you'll find to be many steps ahead.

ABC **PACKAGING MACHINE CO.**
QUINCY, ILLINOIS



THE SECRET OF SUCCESS

A farmer, upon being asked by his young son how to succeed in life, replied: "Never carry a shotgun or your knowledge half-cocked."

If there is any single explanation of the steady progress that Carr-Lowrey has enjoyed since our establishment in 1889, it may be found in the fact that we have always taken great care never to carry our knowledge at half-cock.

Painstaking attention to the most minute details and continuous insistence upon the ultimate in accuracy and precision . . . these have ever been basic Carr-Lowrey principles of operation.

Out of today's swiftly-changing conditions one of the significant post-war trends that is clearly emerging is that the show-window advantages of glass containers are going to play an increasingly important part in mass marketing.

If such straws in the wind indicate the desirability of talking things over with glass-making men who carry their knowledge in an intelligently adjusted position, we invite your inquiries.

**CARR-LOWREY
GLASS CO.**

Factory and Main Office: BALTIMORE, MD. New York Office: 500 FIFTH AVE. Chicago Office: 1502 MERCHANTISE MART

For **Moisture-Proof** **PACKAGING--**

**with
or without
TEAR
STRIP**

UP TO 350 per minute! ...



Whether your product is improved by excluding or retaining moisture, the answer is in Cellophane protection. The perfect package, the economical method and the *fast, foolproof* equipment is the

**Scandia
Cellophane
Tite-wrap**

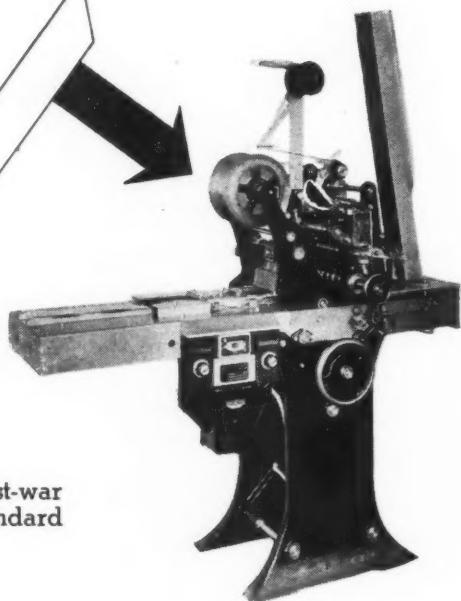
SAVE TIME AND MONEY

WITH A STANDARD SCANDIA*

Manufacturers whose "peak of prestige" relies on the snug, smooth tite-wrap, with or without a convenient "tear-strip" do not compromise with requisite protection; *they want SCANDIA* wrappers.

Packaging for War-essentials, or for Post-war products, you'll find one of the standard Scandia units your best bet!

* Manufactured under Bronander Patents.



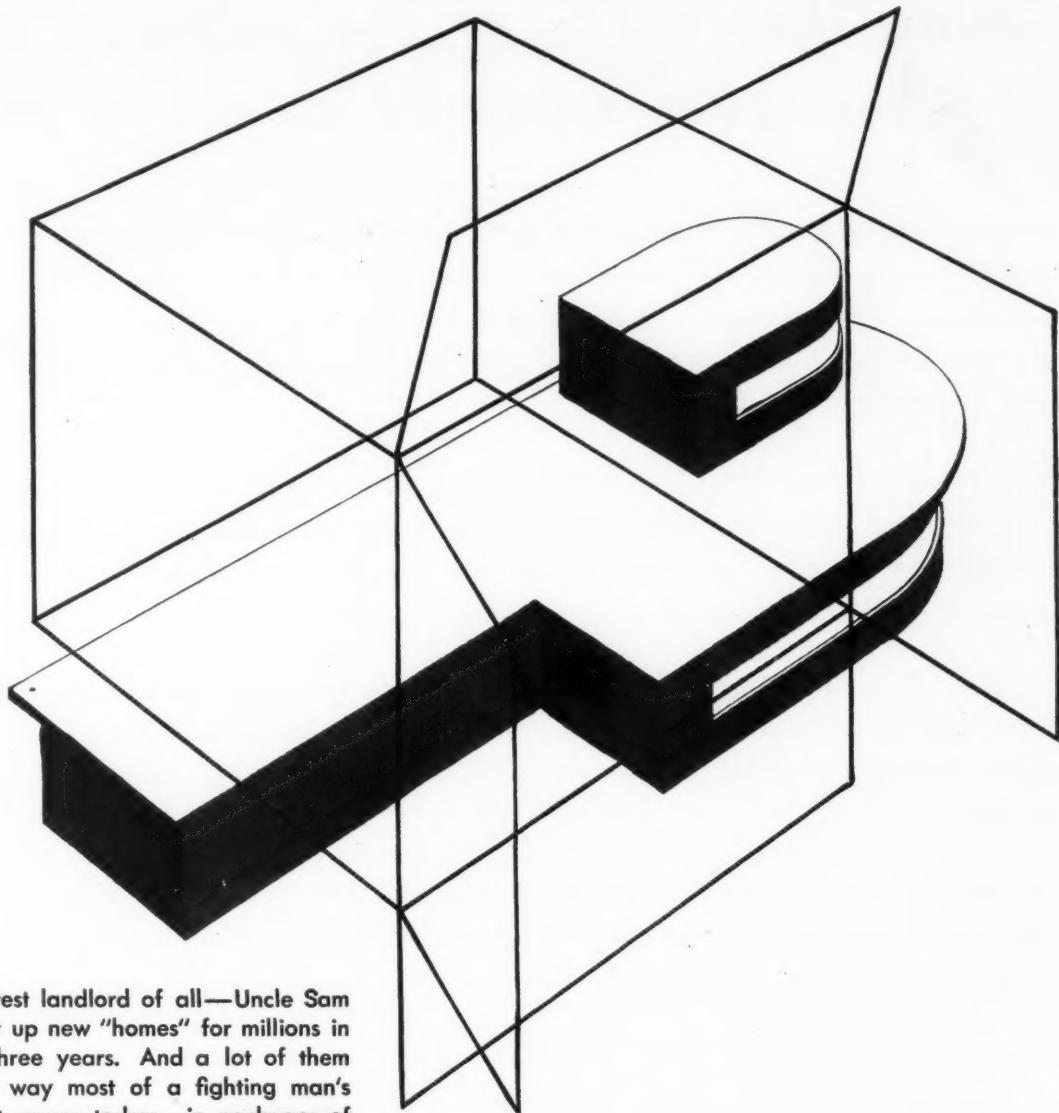
Ask for details! Our Packaging Engineers are at your service.

Scandia MANUFACTURING CO.

NORTH ARLINGTON

NEW JERSEY

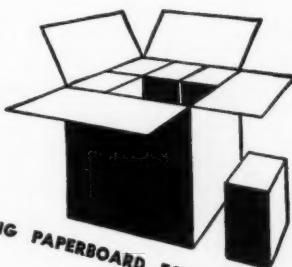
PACKAGED HOMES!



The greatest landlord of all—Uncle Sam—has put up new "homes" for millions in the last three years. And a lot of them came the way most of a fighting man's equipment comes today—in packages of paperboard!

Quantities of building materials, fittings and furnishings for military housing go to the job in corrugated or solid-fibre cases which save weight and bulk, simplify handling and protect against damage.

This war's gigantic supply jobs have turned up new packaging ideas and techniques by the hundred. Some of them are "naturals" for packing peacetime products, too. Container Corporation's staff has developed scores of them . . . perhaps you would like to talk with us about new post-war packages for your products.



EVERYTHING PAPERBOARD FOR EVERYTHING PACKED

CONTAINER CORPORATION OF AMERICA

General Offices: 111 W. Washington St., Chicago 2 • New York • Rochester • Medford, Mass. • Natick, Mass. • Philadelphia • Cincinnati • Cleveland • Circleville
Detroit • Indianapolis • Wabash • Carthage • Anderson, Ind. • Peoria • Rock Island • Minneapolis • Baltimore • St. Louis • Fernandina • Dallas • Ft. Worth

THE NEW* 1944 PACKAGING CATALOG

**more than 60% of the editorial material has never appeared before in print*

The new 1944 PACKAGING CATALOG, with the editorial accent heavy on the theme of reconversion, will be in every sense of the word a brand new book. At least 60% of the editorial material will be entirely new — not rewritten or reedited. And every word in the book has been combed carefully by the editors to make the 1944 edition the most truly useful and up-to-date number of Packaging's only encyclopedia.

The 1944 PACKAGING CATALOG is a workbook — an encyclopedia you will find yourself needing and using from day to day, and from week to week, throughout the coming year. Besides giving you a complete basis of factual information on all types of packages, machines and techniques, the catalog is slanted in the way you are thinking: toward reconversion.

Every fact, every illustration in this huge book (more than 750 pages) will do a three-fold job for you: 1) give you the basis upon which you may conduct your wartime packaging activities; 2) enable you to plan intelligently for your postwar packaging needs; 3) guide you to sources of materials, packages, machines, etc.

The advance sale of this encyclopedia has been amazingly large — so large, in fact, that under paper limitations it looks now as if the book will be oversold. Orders can still be accepted, however. Place yours now and be sure of getting your copies.

THE PRICE HAS NOT GONE UP

\$2.50

\$1.00 more in CANADA
and FOREIGN COUNTRIES

750 pages — library bound

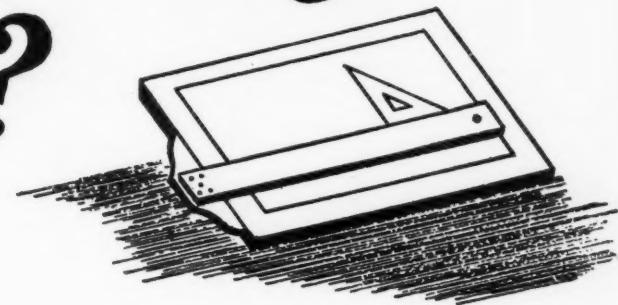
PACKAGING CATALOG

1 2 2 E A S T 4 2 N D S T R E E T, N E W Y O R K C I T Y



DO THE BUYING . . .

How does ~~WILL~~ your package measure up?



Today war production comes first and Victory is most important; however to create post-war jobs numerous manufacturers have already completed plans for products they will turn out in peacetime. And many of these products will be packaged for added sales appeal in folding paper-board cartons ★ ★ ★ These packages must be up to date and pleasing to America's EYES to make sales, for shoppers will walk up to the shelves to do their own picking and thousands of sales will be made or lost, on packaging appearance ★ ★ ★ If you are an executive interested in post-war plans, why not talk to a Specialist in the field of packaging. Consult APACO . . . without obligation, of course.

Branches

AUGUSTA PAPER COMPANY
Augusta, Ga.

BIBB PAPER COMPANY
Macon, Ga.

GEORGIA-ALABAMA PAPER CO.
Columbus, Ga.

**VOLUNTEER STATE PAPER AND
BOX COMPANY**
Knoxville, Tenn.



Associates

MEMPHIS PAPER COMPANY
Memphis, Tenn.

LITTLE ROCK PAPER COMPANY
Little Rock, Ark.



**ATLANTA
PAPER CO.
ATLANTA, GA.**

Manufacturers of CORRUGATED CONTAINERS • FOLDING CARTONS • PAPER BAGS • PAPER PRODUCTS

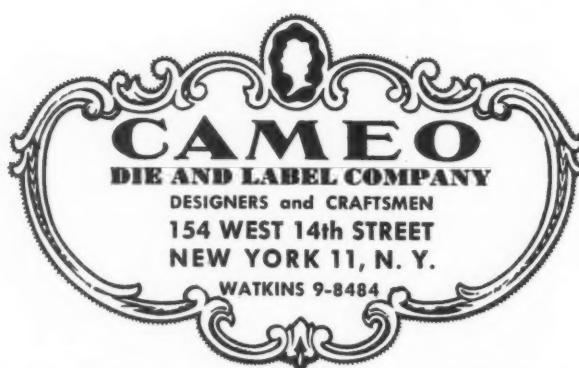
The Ultimate In Craftsmanship

Labels, Seals, Tags, Wraps

Cameo offers the ultimate in craftsmanship—the basic skill which transforms ordinary materials into things of beauty.

Cameo's precision die-making and die-cutting—embossing color-printing—designing—are services known for the highest quality of performance.

Cameo is recognized as one of the finest sources for distinctive labels, seals, tags and wraps. Under today's conditions, we are limited by the materials available. However, within these limits you can still demand and Cameo can still give you beautiful two-



IN CANADA: CAMEO METAL SEAL & LABEL CO., 371 DOWD ST., MONTREAL

Pocket-size PLASTIC PACKAGE



BEETLE cases molded, complete with special Rathbun spring hinge, by the Rathbun Molding Corporation for the Mine Safety Appliances Company.

Each pair of M.S.A. Ear Defenders, designed for wear by industrial workers subjected to severe noise, is packed in a trim, compact BEETLE* case.

Small and sturdy, light in weight, easy to keep clean, these BEETLE cases are "tailor-made" to fit the product. Consult your molder on BEETLE—the plastic

that's all color in all colors—for special or standard packaging to display and deliver your product.

Beetle

a cyanamid plastic

AMERICAN CYANAMID COMPANY



PLASTICS DIVISION
24 ROCKEFELLER PLAZA • NEW YORK 20, N.Y.
SREG. U. S. PAT. OFF.



"WRAPPING" soldiers...a new job for Mr. Cellophane

These Sylvania anti-gas capes are the last word in all-out protection. They demonstrate why Sylvania cellophane is indispensable for a multitude of war uses. It incorporates so many vitally needed qualities in *one* material!

Right now much of our cellophane is at war—and that means less for civilian use. But the developments Sylvania is making today will result in many more uses for cellophane—this better cellophane—in the postwar tomorrow.

SYLVANIA CELLOPHANE

SYLVANIA INDUSTRIAL CORPORATION

Manufacturers of cellophane and other cellulose products since 1929

General Sales Office: 122 E. 42nd St., New York 17, N. Y. ★ Works and Principal Office: Fredericksburg, Va.



• Reg. Trade Mark

NO BAG IS MORE WATERPROOF THAN ITS SEAL

FOR METHOD
1-A PACKING

and the fool-proof
simplicity of
CENTRAL STATES
PRESSURE-SEAL
PAPER BAGS

means a seal that's
water-tight and weath-
er-tight **EVERY TIME.**



NO GLUE...NO HEAT LESS LABOR! IN YOUR PACKING ROOM

BUILT-IN, SELF-SEALING "MECHANISM"
makes Central States, Pressure-Seal, paper bags
absolutely water and weather tight.

By removing a narrow, cellophane strip from the
sealing area and applying pressure with a sim-
ple roller machine...the bag actually seals itself.

Samples on request

CENTRAL STATES PAPER & BAG CO.

2600 N. Broadway, St. Louis 6, Missouri, U. S. A.

CHICAGO
520 N. Michigan Ave.

NEW YORK
489 Fifth Ave.

DETROIT
1951 East Ferry St.

America's foremost manufac-
turers of rigid, transparent
containers

Photo of a Showbox used by
the Armed Forces. It provides
maximum visibility and util-
ity in maintaining communica-
tions lines. That's for war!



For returning peace days...
keen merchandisers are having
Showboxes designed *right NOW*. They are preparing
now for America's return to
"impulse buying" which
will replace today's impulsive
buying.

May we design YOUR post-
war, transparent package
now? Write us today

SHOWBOX DIVISION
Central States Paper & Bag Co.

IDEAS INTO *Action*

BECAUSE the Packaging Industry has always been marked by its keen executives, you men no doubt are exploring the possibilities of automatic machinery to pack label, stamp or bag the packages you have designed or improved for the future.

You are invited to share your thoughts in confidence with our "idea into action" staff—our research and development department.

You tell us what you have in mind and our alert staff will study the requirements and make recommendations.

In putting our "idea into action" staff on your team, you do so with the assurance of dealing with a company of time-tested reputation and success.

Wright's Automatic was founded in 1893 by the late R. H. Wright, who introduced to this country the first practical tobacco packing machine a half century ago. Since then many machines important to the Packaging Industry have been originated or perfected by this company.

Among them have been:

Automatic Strip Stamping Machine for

the uniform placement of revenue stamps on whisky bottles.

Machine for packing free flowing material into tins, glass and cardboard containers.

Weighing devices for free flowing articles.

Machine for automatically feeding individual sheets of paper or mounted foil.

Machine for packing free flowing material in pouch packets using wax paper, mounted foil or cellophane.

Combination pouch labeling and stamping machine.

And several other machines newly developed for manufacture when war conditions permit.

To this list might well be added the machine needed to put into action your new ideas for the future.

All correspondence and conferences will be held in strict confidence.

★ Research & Development Dept. ★

**WRIGHT'S Automatic
Machinery Company**

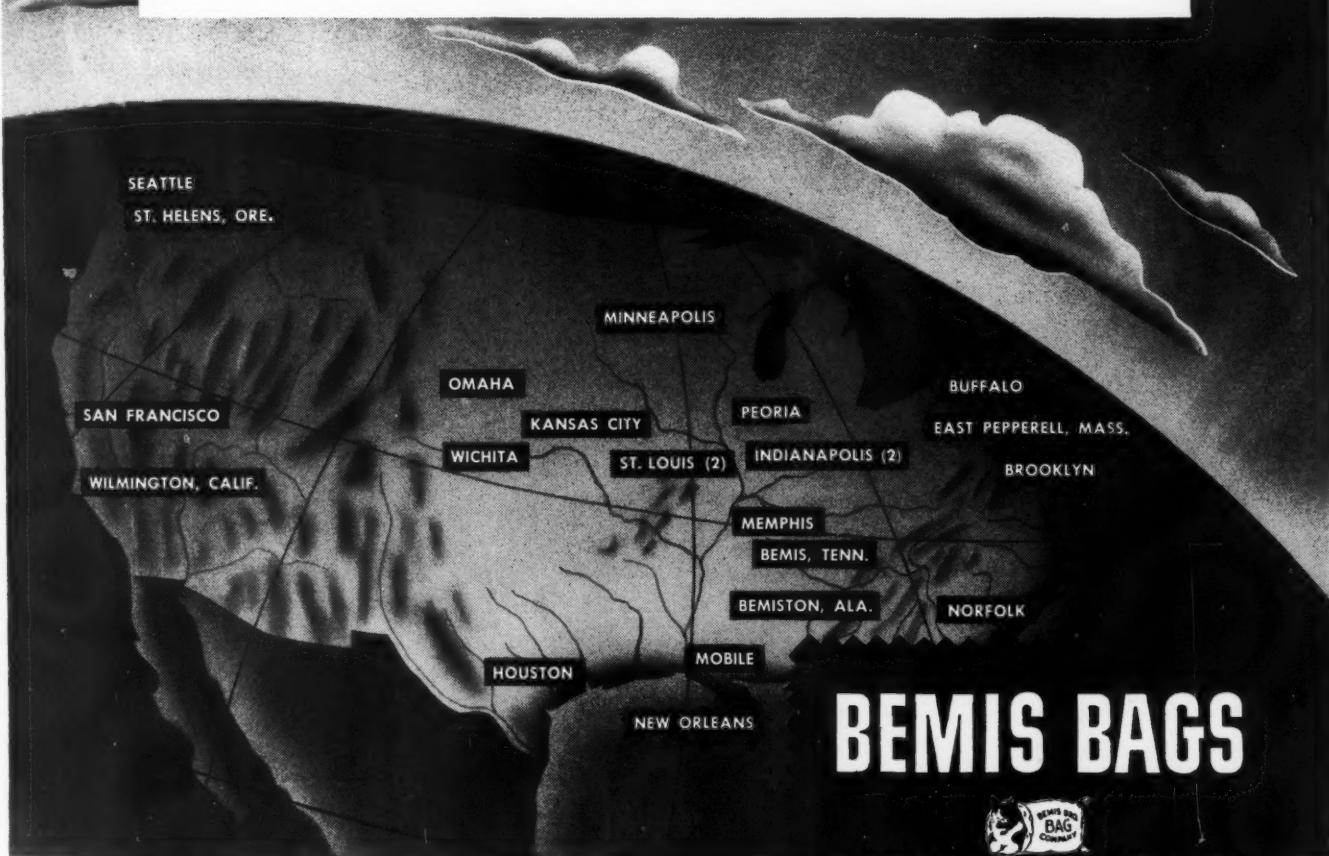
DURHAM, NORTH CAROLINA

TWENTY-THREE BEMIS FACTORIES TO SERVE YOU

WARTIME restrictions and the tremendous movements of the many essential products that are shipped in bags naturally create a tight supply situation. It's a difficult problem to furnish all of the bags that are needed... just when they are needed.

That's why it pays to do business with a company like Bemis.

Twenty-three factories across the country mean a lot of productive capacity... and they also mean convenience and the best possible service under any prevailing conditions. In short, we sincerely believe that today, as in normal times, you'll find Bemis Bro. Bag Co. your most versatile, most reliable source of supply.



BEMIS BAGS



BEMIS BRO. BAG CO.

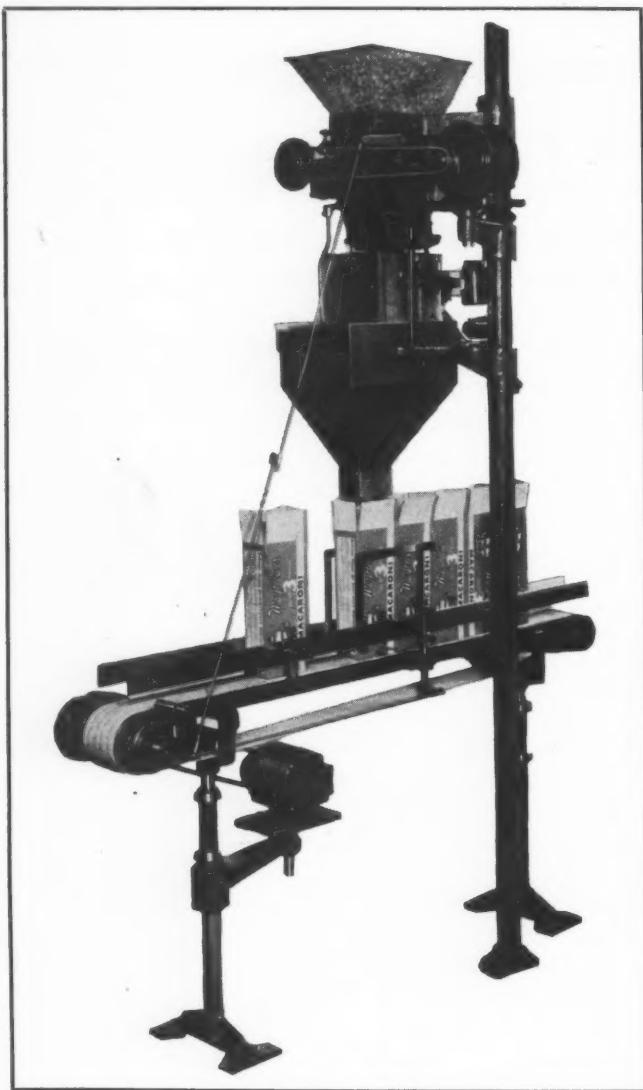
OFFICES: Baltimore • Boston • Brooklyn • Buffalo • Charlotte
Chicago • Denver • Detroit • East Pepperell • Houston • Indianapolis
Kansas City • Los Angeles • Louisville • Memphis • Minneapolis
Mobile • New Orleans • New York City • Norfolk • Oklahoma City
Omaha • Peoria • St. Helens, Ore. • St. Louis • Salina • Salt Lake City
San Francisco • Seattle • Wichita • Wilmington, Calif.

BETTER BAGS FOR 86 YEARS

Bemis makes Paper (both single and Multi-wall), Waterproof, Deltaseal, Cotton and Burlap Bags.

AUTOMATIC NET WEIGHING

The "Scott" Straight Line Weigher



An automatic machine that gives the greatest possible simplicity in operation, and at the same time maintains closest possible weight accuracy

On the STRAIGHT LINE WEIGHER the containers are delivered by straight line conveyor to the net weighing unit. A simple package control mechanism centers them in proper position under the discharge funnel of the weigher.

Different combinations of Scott Scales and Power Feeders can be arranged, according to the weight range and the products to be weighed; or, on absolutely free-flowing materials such as rice, the gravity feed Scale alone, without Feeder, can be mounted over the conveyor.

Speeds up to 30 per minute or better are obtainable.

Send us samples of your filled packages so that we can make recommendations of the proper machine for your needs, as we have other models, both fully automatic and semi-automatic, for net weighing and gross weighing.

When handling cartons we can attach a sealing unit to glue the bottom and top flaps. This can either be our Semi-Automatic Sealer with Compressor-Dryer, or our automatic Combined Bottom and Top Sealing Machine.

U. S. AUTOMATIC BOX MACHINERY CO., INC.

(Divisions: National Packaging Machinery Co.—Cartoning Machinery Corp.)

22 Arboretum Road, Roslindale 31, Boston, Mass.

Branch Offices: New York, Cleveland, Chicago.

Los Angeles: Krugh Equipment Supply Co.

THIS IS YOUR WORLD

and we hope by the time you are old enough to appreciate it . . . a happy one.

For this is your war we are fighting. Fighting that your world will be a peaceful one.

War Bonds help pay for our

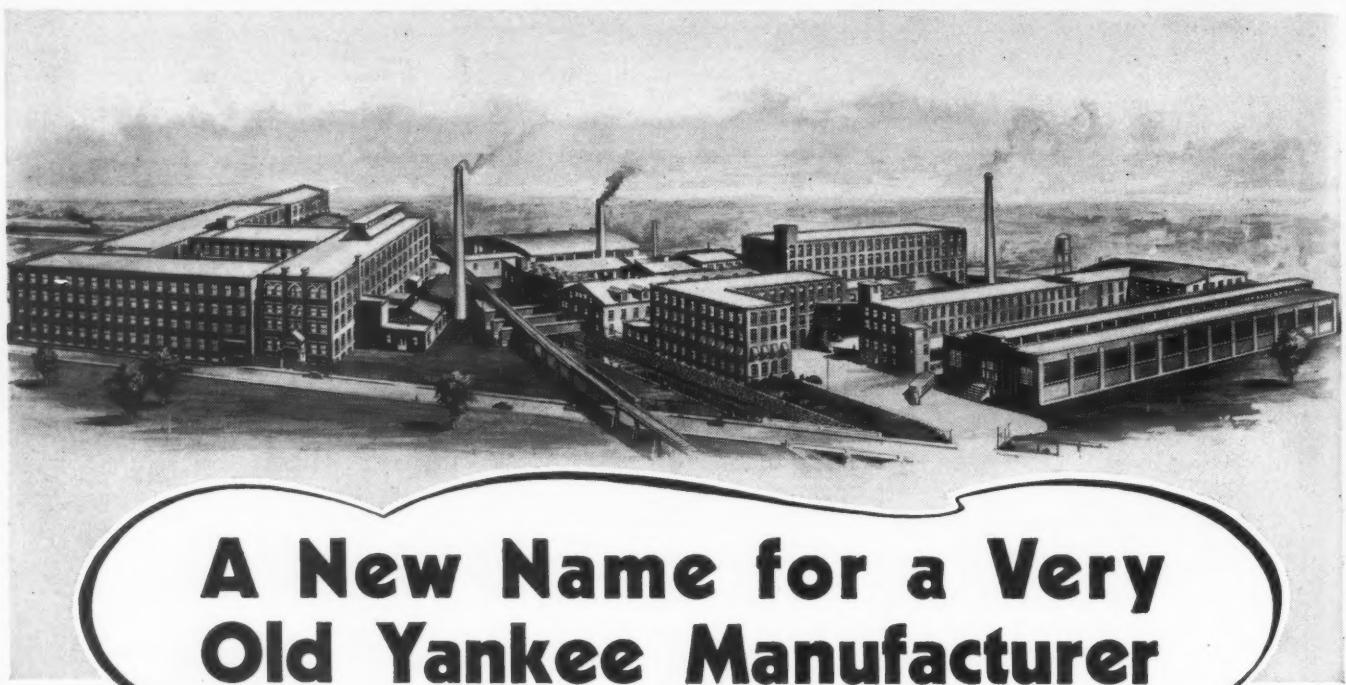
victory—and these Bonds insure your future.

This is a great plan, isn't it? It's why all of us buy War Bonds regularly, and why we must do more than ever during this 5th War Bond Drive.

HAZEL-ATLAS GLASS COMPANY

Wheeling, West Virginia





A New Name for a Very Old Yankee Manufacturer

WATERBURY COMPANIES, INC.

KNOWN for many years as The Waterbury Button Company, this 132 year old Connecticut manufacturer has changed its name, to Waterbury Companies, Inc.

While button manufacturing is and will continue to be a division of this Company, it is, nevertheless, but one of six separate divisions manufacturing a great diversity of products. Thus time and change have brought about a need for a new name.



A Modern Plant with the Equipment and Facilities for Volume Production

Today Waterbury Companies, Inc., is manufacturing thousands of plastic and metal products, most of which are identified with the war effort. Its modern and efficient plant is fully equipped for volume production.

Although largely engaged in essential war work, we are thinking about reconversion to peacetime production. Our engineers and designers will gladly plan with firms who are looking for a dependable source of plastic and metal products.

BUY MORE
WAR BONDS



HASTEN
VICTORY

WATERBURY COMPANIES, INC.

Established 1812 • Department J
WATERBURY • CONNECTICUT

Right on the nose

ON EVERY COUNT!



DOBECKMUN PACKAGING SPECIALTIES

Package design—the right combination of material, shape and design to provide protection, attractiveness and utility. **Cellophane bags**—from ounces to gallons; printed or plain; single or duplex; flats, squares or satchels.

"Tritect" cellophane—wax-laminated film for extra protection, in rolls, sheets or bags. **"Metalam"**—heat-sealing aluminum foil permanently bonded to tough film, to give your product positive protection.

Printed films and foils—in sheets and rolls.

Laboratory testing—complete facilities for pretesting packages under all conditions of climate and service, to insure the right answer in advance.

Tritect and **Metalam** are trademarks of The Dobeckmum Company.

Package patent—Nos. 2,121,988 and 2,125,318.

CHECK the requirements of your packages. If they must be moisture-proof, flexible, durable, and radiate eye appeal, then examine METALAM. This heat-sealed laminated aluminum foil meets every count, right on the nose.

Moistureproof? The metal barrier is impervious to moisture, proved by its ability to fully protect such hygroscopic and intolerant products as instant coffee, dehydrated lemon juice and effervescent pharmaceuticals even in the Tropics.

Flexible and durable? The lightness of the metal sheet allows easy forming for fabricating and packing, yet its strength gives it ample resistance to rough handling.

And for eye appeal... the transparent acetate over the metal foil sets a brilliant background for attractive multicolor printing that says to your customers—"Come and get me".

Yes, Metalam meets all these essentials. Right now, the military services take all our capacity. But when that job is done, it will be available to you again, in rolls, sheets and bags. Ask for samples and details, so that you can plan ahead to give your products complete and permanent protection in Metalam.

CONVERTERS—PRINTERS—LAMINATORS of FILMS and FOILS

THE **D O B E C K M U N** COMPANY
CLEVELAND 13, OHIO

WESTERN SALES HEADQUARTERS • SAN FRANCISCO
OFFICES IN NEW YORK, BOSTON, PHILADELPHIA, CHICAGO AND LOS ANGELES • REPRESENTATIVES EVERYWHERE



Lightweight Champ...

When you have a tough job to do, you waste no ounces. That holds true whether you're designing a jeep or a container to protect battle-bound supplies to armies far from home.

Under stress of war the Warner Craftsmen have learned new ways to save weight and save space, at the same time protecting the product from the extremes of temperature and moisture it may meet all the way from Iceland to the South Pacific.

These savings can help you today in shipping to the far-flung front lines. They will provide new economies for your distribution after victory is won. Lay your toughest packaging problems before the Warner Craftsmen today.



Makers of set-up and folding boxes of all types, transparent acetate containers, hand made specialties, counter displays and dispensers.

THE WARNER BROTHERS COMPANY

Main Office and Factory: 325 Lafayette Street, Bridgeport, Conn.
New York Sales Office: 200 Madison Avenue, New York, N. Y.

WARNERCRAFT

The Purity of Crisco is Protected

BY "CEL-O-SEAL"



► When a leading manufacturer chooses CEL-O-SEAL to seal glass containers, he's looking for product protection. And he gets it.

The CEL-O-SEAL cellulose band around the Crisco paper cap seals in purity . . . seals out dust and other impurities. CEL-O-SEAL assures a safe, clean voyage for the product—from the point of manufacture all the way

to the consumer's kitchen. These bands hold closures securely in place.

CEL-O-SEAL bands are available in smart, distinctive colors. For a wide variety of products they provide a way to increase product protection and sales appeal. We shall be glad to discuss possible applications to help solve your packaging problems. Write today for complete details.

CEL-O-SEAL bands are sold by:

E. I. du Pont de Nemours & Co. (Inc.)
"Cel-O-Seal" Section,
Empire State Building, New York City 1

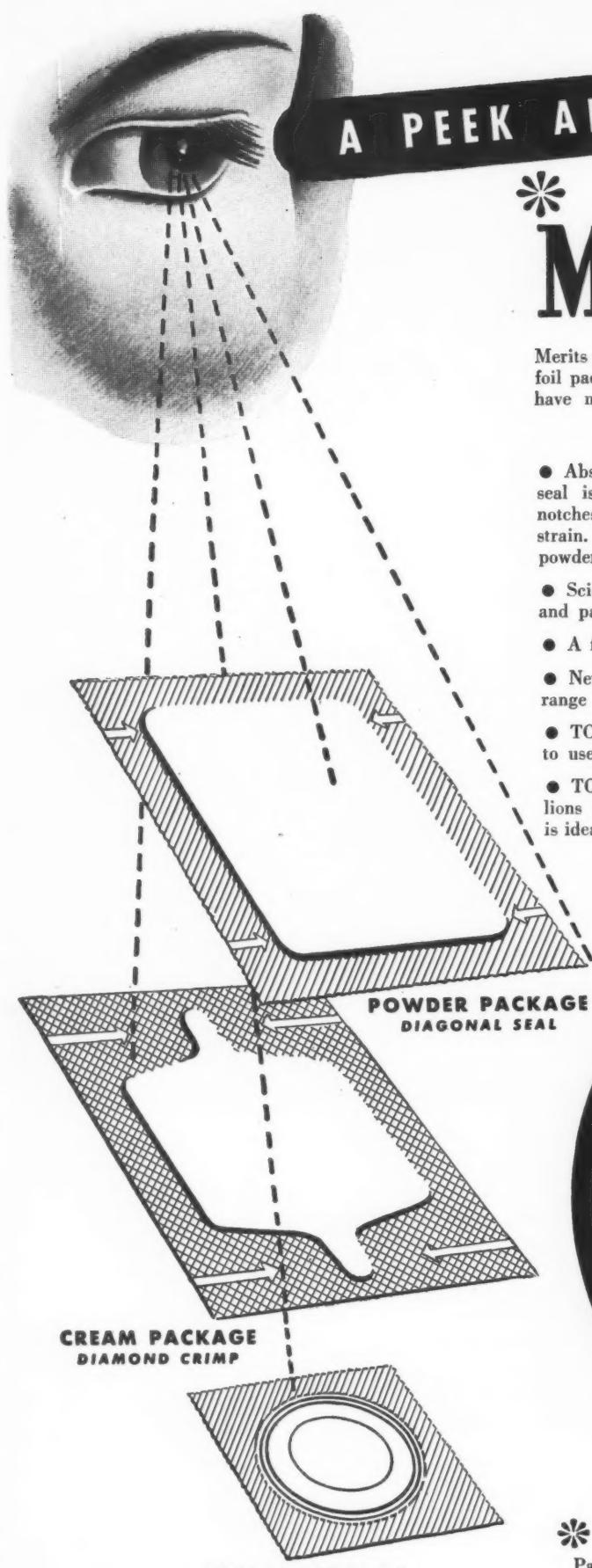
Armstrong Cork Company
Glass & Closure Division, Lancaster, Pa.

I. F. Schnier Co.
683 Bryant Street, San Francisco 7, Calif.

DU PONT CEL-O-SEAL BANDS



BETTER THINGS FOR BETTER LIVING . . . THROUGH CHEMISTRY



A PEEK AROUND THE CORNER

METASEAL-PAK

Merits your careful consideration now. Metaseal-Pak is a laminated, aluminum foil package which incorporates the basic principles of unit-wrapping which have made Sanitape-Sealtite famous. Particular details are given below.

EXCLUSIVE FEATURES OF METASEAL-PAK

- Absolutely moisture-proof, yet no metal touches product. Type of flange seal is determined by individual product requirements. Special tearing notches for each opening. Rounded corners which prevent internal bursting strain. Extruding nozzle for dispensing creams, ointment, liquids, free-flowing powders and tablets. Each package is designed to fit the particular product.
- Scientific selection of laminated materials best suited to your product and packaging problem.
- A finished package with a beautiful printing surface for sales story.
- New high speed equipment brings expensive packages within a price range that will amaze you.
- TODAY availability of Metaseal-Pak is restricted by the government, to use in packaging war products and critical drugs.
- TOMORROW the equipment will be ready to produce hundreds of millions of packages of endless consumer products for which Metaseal-Pak is ideally suited. We shall be glad to give you complete and pertinent details.

POWDER PACKAGE
DIAGONAL SEAL

CREAM PACKAGE
DIAMOND CRIMP

TABLET PACKAGE
RING CLOSURE

Packages, Methods and Machinery Covered by U. S. and Foreign Patents.

A UNIQUE PACKAGING SERVICE

IVERS - LEE COMPANY • NEWARK, N. J.

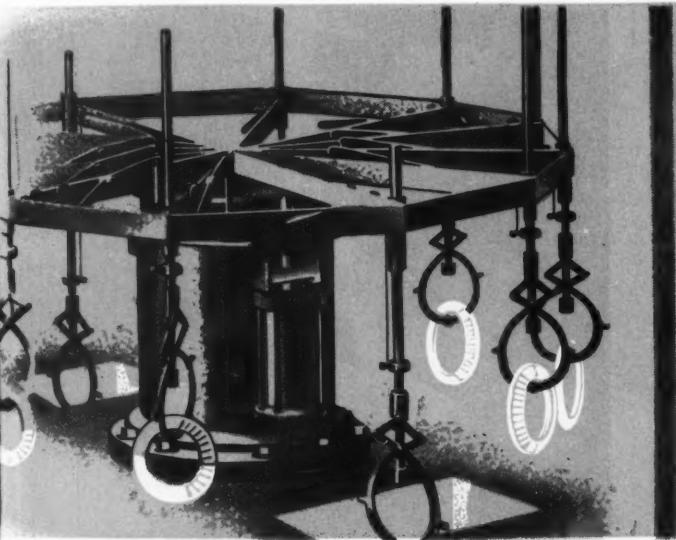


Stripcoat—the skintight "package"

Just DIP IT—SHIP IT—STRIP IT

A Complete Protective—Quickly and Simply Applied—

Handily Removed—Reduces Man-Hours by 80%



Stripcoat is a comparatively new packaging development. Formulated by Dow, this hot-melt-dip protective coating has already been tested beyond all ordinary requirements. The hazards of present-day logistics—the vast distances, the rush schedules, the unavoidable rough handling, the extreme climatic contrasts—all these have served to emphasize the efficiency of Stripcoat in actual use. Its success is due essentially to its resilient toughness, an inherent characteristic of Ethocel (Dow Ethylcellulose), the plastic base from which Stripcoat is made.

The single simple operation of dipping a metal part in molten Stripcoat provides positive protection, con-

serves manpower and saves time and cost, whether performed manually or mechanically. (A typical dipping machine is illustrated above.) In transit, Stripcoat resists corrosion and abrasion, and it will withstand considerable weight pressure without perforation by the metal, when parts are piled or stacked. And at destination, or following even long periods of storage, additional man-hours are saved by Stripcoat because the part can be easily hand-stripped for instant use.

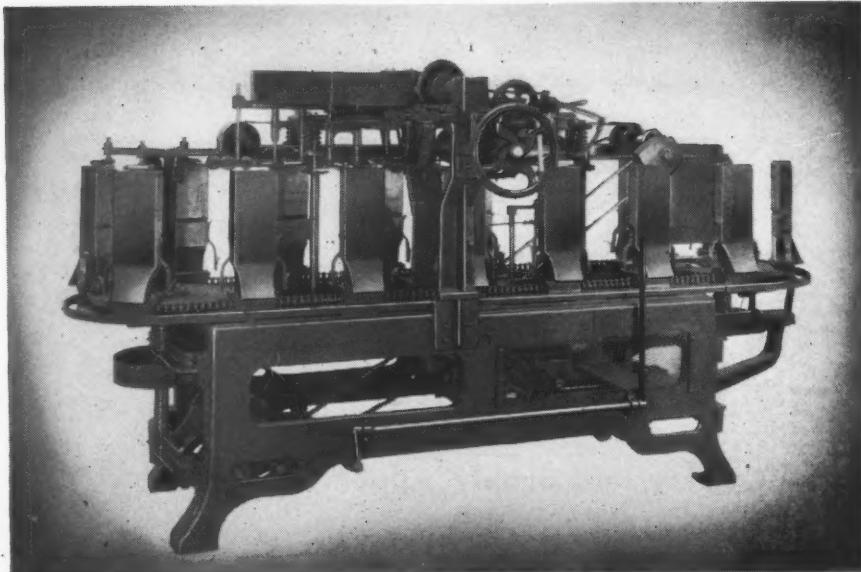
THE DOW CHEMICAL COMPANY, MIDLAND, MICHIGAN

New York • Boston • Philadelphia • Washington • Cleveland • Detroit • Chicago
St. Louis • Houston • San Francisco • Los Angeles • Seattle

DOW PACKAGING PRODUCTS INCLUDE—STRIPCOAT • SARAN FILM • ETHOCEL SHEETING

Stripcoat
DIP IT SHIP IT STRIP IT

DOW
CHEMICALS PLASTICS MAGNESIUM
INDISPENSABLE TO INDUSTRY AND VICTORY



CARTON SEALERS

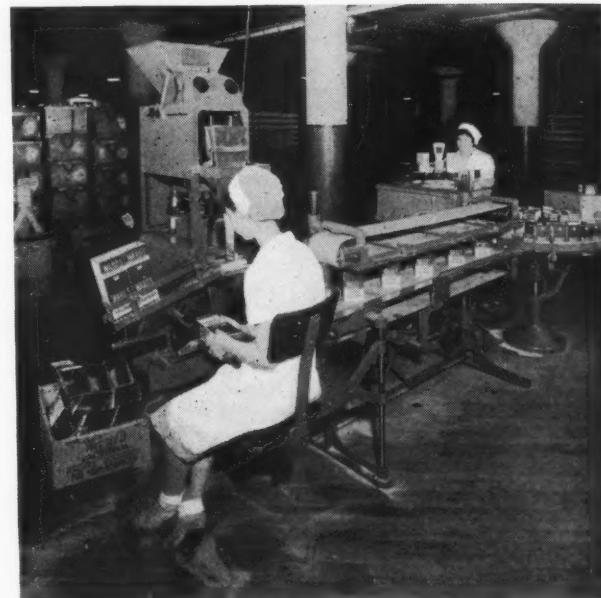
for Every Requirement



Triangle builds semi-automatic top-and-bottom carton sealers to meet every requirement. Triangle Sealers offer many advantages such as flexibility, fast operation, tight sealing and long trouble-free operation. This equipment is designed so as to occupy a minimum of floor space, thereby increasing output per square foot.

The unit illustrated above is a Model B Automatic Bottom Carton Sealer, fully adjustable for sealing carton bottoms at speeds of 60 to 80 per minute. This machine is widely used in bakeries where cracker and cookie cartons are bottom sealed with tuck-in tops.

For complete data on Triangle Carton Sealers, write today outlining your production requirements and send sample cartons.



- Above — Weighing, filling and carton sealing with a Triangle Elec-Tri-Pak Weigher, Carton Sealer and Collector Table at Ward Baking Co., Cleveland. Here's a combination of Triangle units for efficient, economical packaging that makes possible a profit out of a by-product that would otherwise be a loss.



TRIANGLE PACKAGE MACHINERY CO.

907 NO. SPALDING AVENUE, CHICAGO 51, ILLINOIS

SALES OFFICES IN: New York, Denver, Cleveland, Birmingham,

Los Angeles, Dallas, San Francisco, Framingham, Mass., Montreal, Canada.

AUTOMATIC AND SEMI-AUTOMATIC WEIGHERS, FILLERS AND CARTON SEALERS



BONDERIZED Sheet Steel

HELPS SOLVE THE PACKAGING PROBLEM

Over the last twelve months millions of base boxes of Bonderized sheet steel were produced at the steel mills and used in the manufacture of cans for packaging many types of foods, munitions and other products. Production of Bonderized sheet steel for the packaging industry has been steadily increasing.

This indicates the present as well as the future possibilities of Bonderized sheet steel for cans, containers and bottle caps. It is an aid in breaking the "bottle neck" in the production of adequate packaging material and points to interesting future possibilities.

PARKER RUST PROOF COMPANY
2187 E. MILWAUKEE AVE. • DETROIT 11, MICHIGAN

PARKER PRODUCTS CONQUER RUST



In addition to general line cans, Bonderized Sheet Steel is an ideal material for other types of metal containers, as well as for jar covers and bottle caps.



We **SELL** your product
NOT SIMPLY WAREHOUSE IT!

In revalueing your distributive facilities from Illinois eastwards . . . America's No. 1 market area . . . are you looking for more alert, more sales-minded representation? Plan now for the strongest possible post-war sales connection in this wealthy, productive territory. We offer you trained, experienced sales personnel . . . forward-looking distribution methods . . . and strategically located warehouse services.

It's not too early
NOW to investi-
gate Hubbs
Houses' unusual
advantages.

for a
DISTRIBUTORSHIP
that means
LEADERSHIP
CONTACT THE
HUBBS HOUSE
NEAREST YOU

ESTABLISHED IN 1855



THE HUBBS HOUSES

CHARLES F. HUBBS & COMPANY
Lafayette Street Warehouse
Beekman Street Warehouse
NEW YORK, N. Y.

HUBBS & CORNING COMPANY
BALTIMORE, MD.

HUBBS & HOWE COMPANY
BUFFALO, NEW YORK

HUBBS & HASTINGS PAPER CO.
ROCHESTER, NEW YORK

CHARLES F. HUBBS & COMPANY
BRIDGEPORT, CONN.

INTERSTATE CORDAGE & PAPER CO.
PITTSBURGH, PA.

THOMAS J. NAGLE PAPER CORP.
HOLLIS, NEW YORK

HUBBS & HOWE COMPANY
CLEVELAND, OHIO

HOLLAND PAPER COMPANY
BUFFALO, NEW YORK

CHARLES F. HUBBS & COMPANY
TROY, NEW YORK

and in Canada

VICTORIA PAPER & TWINE CO., LTD.
TORONTO

VICTORIA PAPER & TWINE CO., LTD.
MONTREAL

VICTORIA PAPER & TWINE CO., LTD.
HALIFAX

GARDEN CITY PAPER MILLS CO., LTD.
ST. CATHERINES, ONT.

**CANADIAN VEGETABLE PARCHMENT
PAPER CO., LTD.**
MERRITTON, ONT.

**An ordinary type of container
Couldn't DO this job —**



They wanted a container to protect a vial of orthotolidine tablets, and at the same time to serve as a water-sampler by which army drinking water could be tested for purity. If water, after adding a tablet, matched the color of a processed yellow band on the container, it was fit to drink.

so they naturally selected
SHATTERPROOF · SEAMLESS · COLORFUL

Clearsite*

This better protection is assured by **Clearsite** resilience. The desired color, processed directly on the container obviates the loss of color if ordinary paper labels had been used. You can PLAN your package to fit certain specific needs if you use **Clearsite**!

Clearsite, available in all sizes, and for a wide variety of closures, can be opaque or transparent. It is attractive as well as highly utilitarian.

* Reg. U. S. Pat. Off.

*... Ask Celluplastic Specialists on packaging
how Celluplastic advantages can help you!*



CELLUPLASTIC CORPORATION

60 AVENUE L

NEWARK, N. J.

PAPER PROCESSED TO A PURPOSE*

ART SERVICE

A complete designing service — including the know how. Artists trained and experienced in modern packaging practices create for you sales-making designs and color combinations. Creative ability with practical production knowledge.



NASHUA GUMMED AND COATED PAPER COMPANY, NASHUA, N.H.

* SPECIALISTS IN
MODERN PACKAGING
MATERIALS

MODERN PACKAGING

VOLUME 17

JUNE 1944

NUMBER 10

Edible containers—four and a half billion of them a year

Visionaries who say that someday practically everything to eat will be in capsules may not be too far wrong. You can't go through a full-course dinner that way yet, but you can get anything from encapsulated chicken soup to encapsulated flavoring for lemon pie. And, of course, today's supplementary diet of vitamins is almost all capsules.

The capsule capital of the world is the Gelatin Products Co. From its main plant in Detroit and its two foreign plants in Windsor, Ont., and Slough, England, now roll nearly 4½ billion gelatin capsules a year—90% of the tiny containers used for vitamins and medicines and for a dozen or more other packaging purposes including face creams, hair tonic, light machine oils, concentrated foods, cigarette lighter fluids.

King of this gelatinous empire, in his own right, is Robert Pauli Scherer. A graduate of the University of Michigan, chemical engineering, 1930, he quit his first job with a drug firm because he didn't like the pay and because he didn't like the machinery they used. In his father's basement, he built a machine of his own. He was offered \$250,000 for it. Thought he, "If it's worth that much to somebody, it should be worth a great deal more to me."

In February 1933 he started out in business with his machine—the rotary-die process for making gelatin capsules and tubes. This process has opened up entirely new fields in packaging and offers many possibilities for the future.

Although primarily designed for use in pharmaceutical manufacture, the gelatin containers made by this machine are in demand for many other kinds of products. Experimental work on the ability of the machine to handle plastic materials other than gelatin may also add to its usefulness after the war, when such materials are available and American manufacturers are looking for new convenience and eye-appeal in packaging.

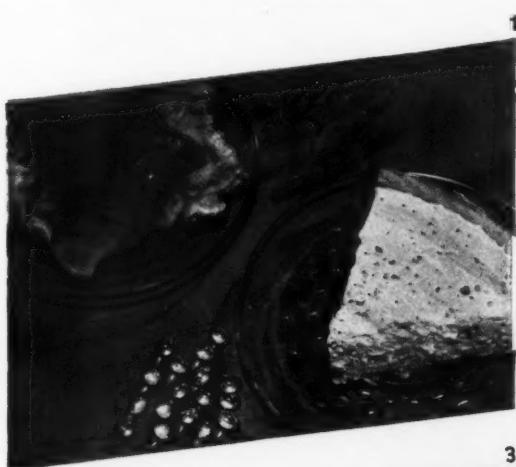
Chief characteristics of the rotary die method of capsulation are (1) accuracy of fill to within one milligram for each capsule; (2) high speed production obtainable through automatic and simultaneous filling, forming and hermetically sealing of the gelatin container.

The first reason for a capsule was to make medicine taste better while today one of the main reasons probably is the excellent stability of contents that it affords. In the sixteenth century, Michael Servetus wrote a treatise in favor of

1—Lemon flavoring for pie is protected from oxidation, evaporation and loss of strength in gelatin containers. 2—Chicken soup concentrate is hermetically sealed in edible capsule, protected from rancidity. 3—Accurate dosages of medicines for babies in easily administered capsules.



2



1



3

4—Single application containers for ophthalmic ointments. Larger gelatin tubes equipped with plastic caps to protect contents and top of tube. 5—Suppository application is simplified by use of soluble container. 6—Face creams and sun tan oil can be put in colorful capsules. 7—Just enough cigarette lighter fluid for one fill in a labeled capsule. Labels are decalcomanias.



4



5



6



7

palatable therapeutics, according to the script of Gelatin Products' promotional film. Not until 1833, exactly 100 years before Mr. Scherer's machine, however, did a pharmacist named Mothes enclose nauseous doses in tasteless, digestible gelatin. Mothes made a mold of soft leather, shaped like an olive. He tied this sac-like mold to the long stem of a small funnel, provided with a close-fitting top. Mercury poured into the funnel distended the leather sac. When the sac was dipped into the fluid gelatin, a thin layer of gelatin adhered. On cooling, the gelatin quickly congealed. Then, with the gelatin hard enough to handle, the capsule could be slipped off the mold—the first elastic gelatin capsule.

Later in the 19th century, a new method was developed to increase production. This was called the "plate process," because two metal plates containing dies pressed the capsules out of a "sandwich" consisting of two thin sheets of gelatin with the medicine to be capsulated between. As the die plates were forced together, the fluid content flowed to the points of least pressure—or the thin spots in the sheets and away from the areas where the gelatin sheets were stretched more tightly as about the edges. Capsules made by such methods, however, vary in size, shape and quantity of fill. As the medical profession demanded greater accuracy of dosage, much effort was spent trying to improve the accuracy of soft elastic capsules made by this method, but never with much success.

Mr. Scherer's method of the rotary-die process was thus a radical departure from all previous methods. Gelatin in powdered form, similar to that used by the housewife for gelatin desserts, is delivered in large bulk containers to the Gelatin Products plants. The gelatin first goes into huge beaters, like giant electric kitchen mixers, for mixing additional dyes to give color. From there it goes to melting tanks and in liquid state is transferred to the storage tanks of the rotary-die capsulating machine.

Here it is formed into continuous sheets. Two continuous ribbons of this gelatin film are passed over a pair of rotating die rolls. Placed between the die rolls and on top of the gelatin ribbons is an injection wedge. From a metering pump which measures the amount of fill to be placed in each capsule, the content material is forced through a tiny orifice at the tip of the injection wedge. Pressure of the content material bulges the gelatin sheets into the die pockets to form the two halves of the capsules which are constantly being carried forward by the rotation of the die rolls. As the dies meet, the two halves are sealed together and the completed capsule is severed from the two ribbons of gelatin. The entire operation is continuous and automatic.

Temperature control is of the utmost importance throughout the process. The capsulation room is air conditioned and kept at a temperature of about 70 deg. and 60 to 65% relative humidity. Cool air of about 60 deg. is forced over the drums where the gelatin ribbons are formed. The temperature of the injection wedge which furnishes heat for the welding of the two halves of the capsules is extremely sensitive and must be maintained constantly at the proper degree.

A blanket of inert gas, when it is deemed necessary, is used

to protect the fill from oxidation prior to its capsulation.

The gelatin matrix, from which the capsule shells are cut and which look very much like a continuous length of netting, is ejected into a receiving tank below the rotating die rolls. The gelatin matrix is entirely free of contact with capsule contents and suitable for remelting and reuse. The completed capsules drop from the machine into large metal trays which are taken to drying tunnels conveniently located in front of each machine. After being dried for a specified length of time, they are removed through doors at the opposite ends of the tunnels to inspection rooms where girl operators scan every tray for rejects. After inspection, the capsules are ready for a final bath with naphtha to remove the protective mineral oil coating.

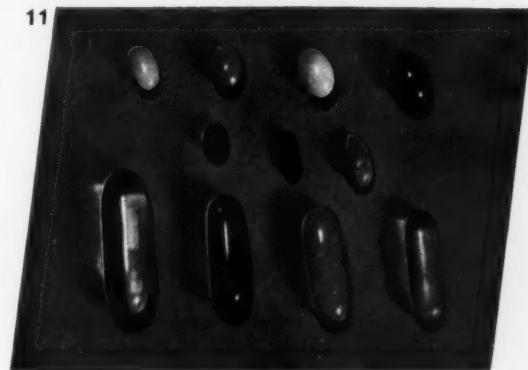
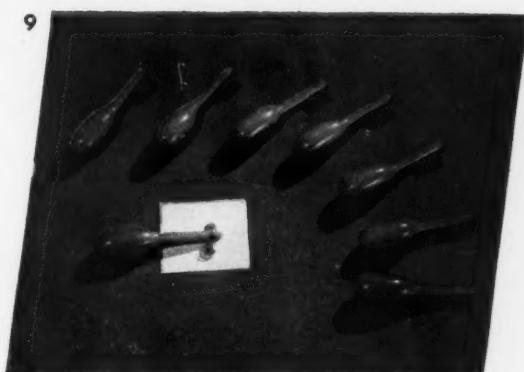
In the shipping room, corrugated cartons are set up and moved by gravity conveyor to loading stations where the capsules are placed in their containers. The corrugated boxes are usually provided with several partitions to lighten the weight of too many capsules resting on each other that might cause breakage.

Because of the dependence of the pharmaceutical industry on Gelatin Products to have on hand at all times a supply of vitamins and other medicines that go into the capsules, Gelatin Products now maintains a Fine Chemicals Division engaged in the manufacture of vitamins, hormones and other glandular and chemical substances which are directly related to its business. Many firms are dependent on them for supplying all the ingredients included in the capsules they buy. Such firms are also depending more and more upon Gelatin Products Co. for consumer unit packages of their products.

The company has, therefore, designed semi-automatic equipment for loading vitamin capsules into the familiar die-cut "punchboard" platform box. Because ready consumer acceptance for capsules is the essence of their business, the company has taken keen interest in designs for package units to hold these tiny containers that will show them off to best advantage. They have a new one which they call their "Tiffany" box planned to eliminate the troublesome tendency of capsules to fall out of a "punch board" if the box is tipped. They thought they had the problem licked just before the war, but the limitations on supplies of cellulose acetate have slowed up the progress.

The box is called "Tiffany" because each jewel-like capsule in it is mounted in die-cut prongs of cellulose acetate. The prongs are formed by two diagonal slits cut in the cellulose acetate sheeting that look like X marks when the sheet is flat. When the capsules are filled from the back of such a sheet and forced through just far enough, they appear to be held in the prongs, like a diamond in a Tiffany setting. When a box of capsules so mounted is tipped upside down, the capsules stay in. They are held in position by a second sheet of the acetate glued or heat-sealed to the top sheet with the capsules in between. This works fine with cellulose acetate, but various types of paper do not provide the proper rigidity. Another wartime difficulty is to obtain mechanical equipment for high-speed loading of such boxes.

However, the companies who have tried it out have had



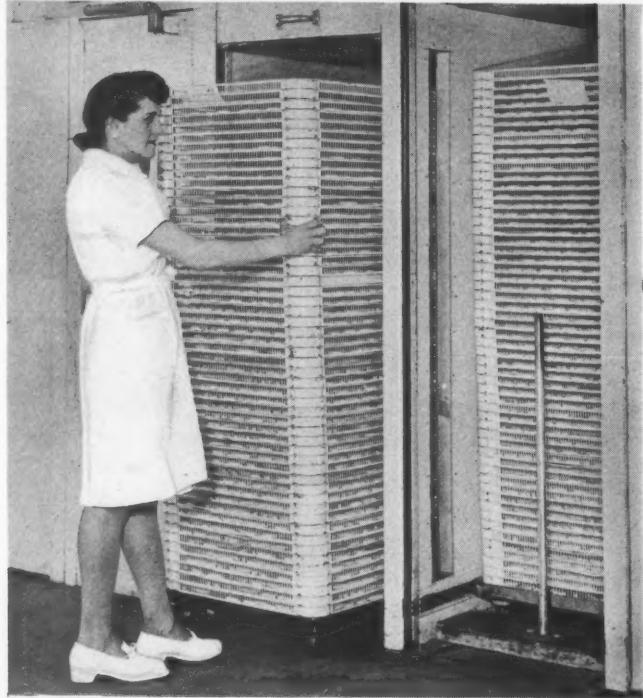
8—Larger types of gelatin containers for creams, salves, ointment or prophylactics. 9—Long-tipped tube for single application of such preparations as pile ointment. 10—Hermetic seal, extreme accuracy of fill, identifying colors make these containers ideal for vitamins. 11—Veterinary treatment of animals is less hazardous and simplified by the use of these edible gelatin containers.



12



13



14

12—Robert Scherer, inventor of the rotary-die process and his capsule machine. Two ribbons of gelatin pass over pair of die-rollers. Content material is forced through orifice at tip of injection wedge above die rolls. Pressure of content material bulges gelatin sheets into die pockets. As revolving dies meet, two halves are heat-sealed together to complete capsule. 13—Close-up of die rolls and varied shaped capsules that can be made. 14—Completed capsules are taken to drying tunnels. 15—The inspection operation. 16—Final step—washing in naphtha.

good results and Gelatin Products is sure that this type of container for capsules will become popular. It also has vast color possibilities, since colored acetate sheeting as well as clear transparent may be used and selected to combine various color combinations with the colors of the capsules.

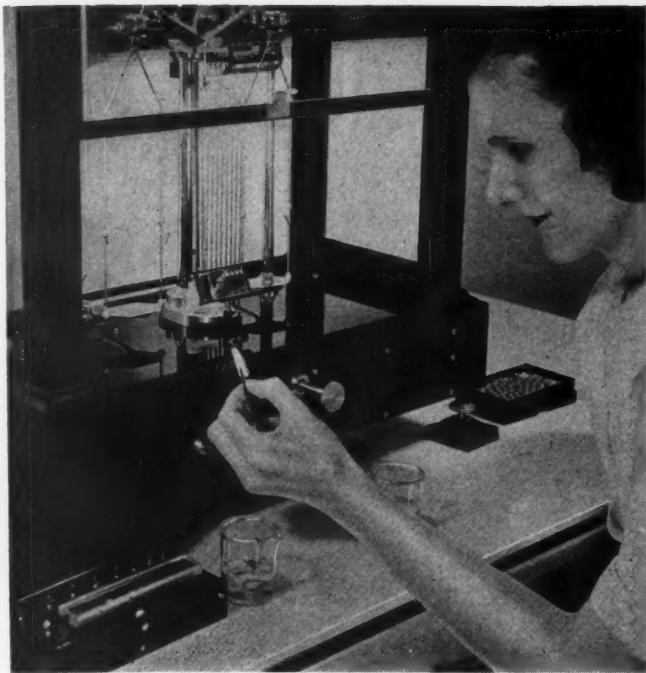
Because most of its customers are principal pharmaceutical manufacturers, large drug wholesalers, veterinary concerns and cosmetic firms, whose products must at all times measure up to Government and medical standards, Gelatin Products

16



15





17

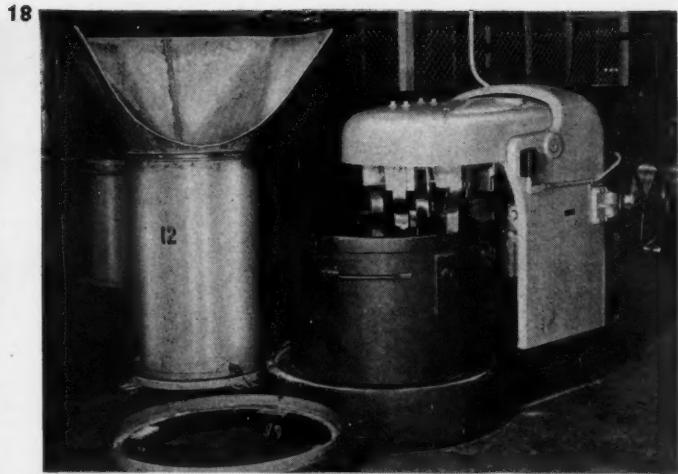
17—Four or five times a day, capsule samples are taken from machines and weighed to assure continuous accuracy of fill. 18—Gelatin is first prepared in giant mixer, where color is added. 19—Gelatin is melted and blended in electrically heated tanks. 20—Semi-automatic machine, much of it made of wood, for filling vitamin capsules into punch-board boxes. 21—To keep capsules from spilling, Gelatin Products has designed the "Tiffany" box with prongs to hold each capsule. It offers many postwar possibilities although further development is held up for the duration.

has a heavy responsibility in maintaining high standards. If the potency or formula of any capsulated product is challenged, the blame falls right back in their laps.

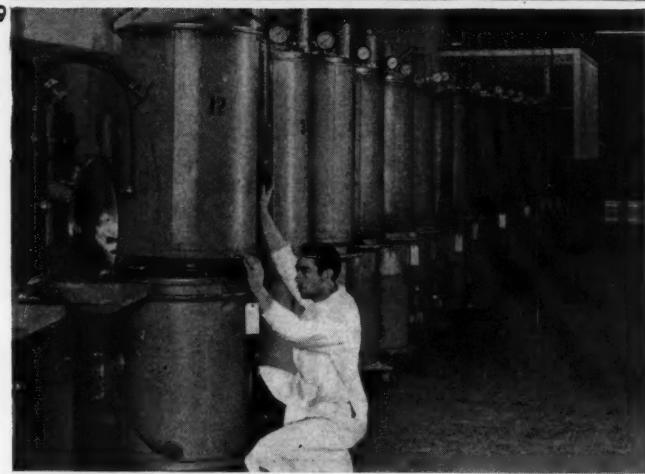
For that reason control and research play a very important part in the operations. All raw material must be carefully assayed before it is capsulated. All substances entering the composition of the capsule undergo careful tests to make sure they measure up to rigid specifications. A control number for every shipment and a record of when the product was made and the source of materials that went into it are carefully filed and easily accessible on a moment's notice. Sample capsules from every machine are taken to a laboratory four or five times a day, weighed, contents removed and capsule shell weighed, to determine the continuous accuracy of the fill. An example of the careful detail with which all of this is done is the way in which each capsule shell for this inspection is washed with ether so that no particles of ingredient are left in the empty shell that would affect the weight comparison of the full capsule with the shell.

Nearly the entire second floor of the Detroit plant is given over to research laboratories and product development.

The complexity of the capsule-making machine can be realized by the fact that it contains more than 500 moving parts. Specially designed machines made in the company's own machine shop are required to cut the die rolls used in the process. Four cams in this machine automatically control the movements of the cutting tool which shapes the die. Since the shape of these cams determines the pattern to be cut, the engineering department must (Continued on page 144)



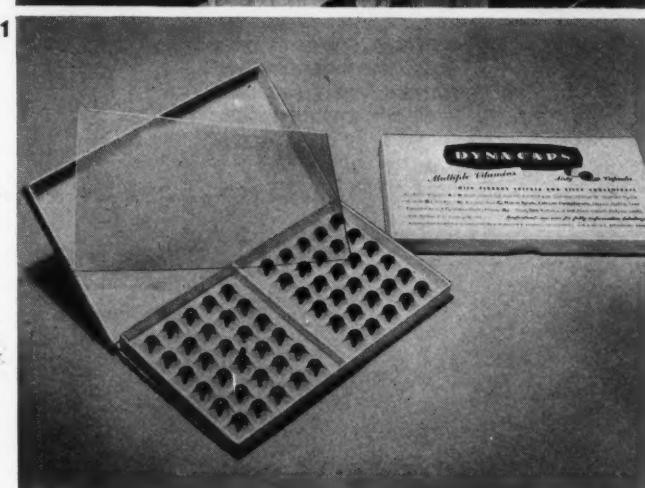
18

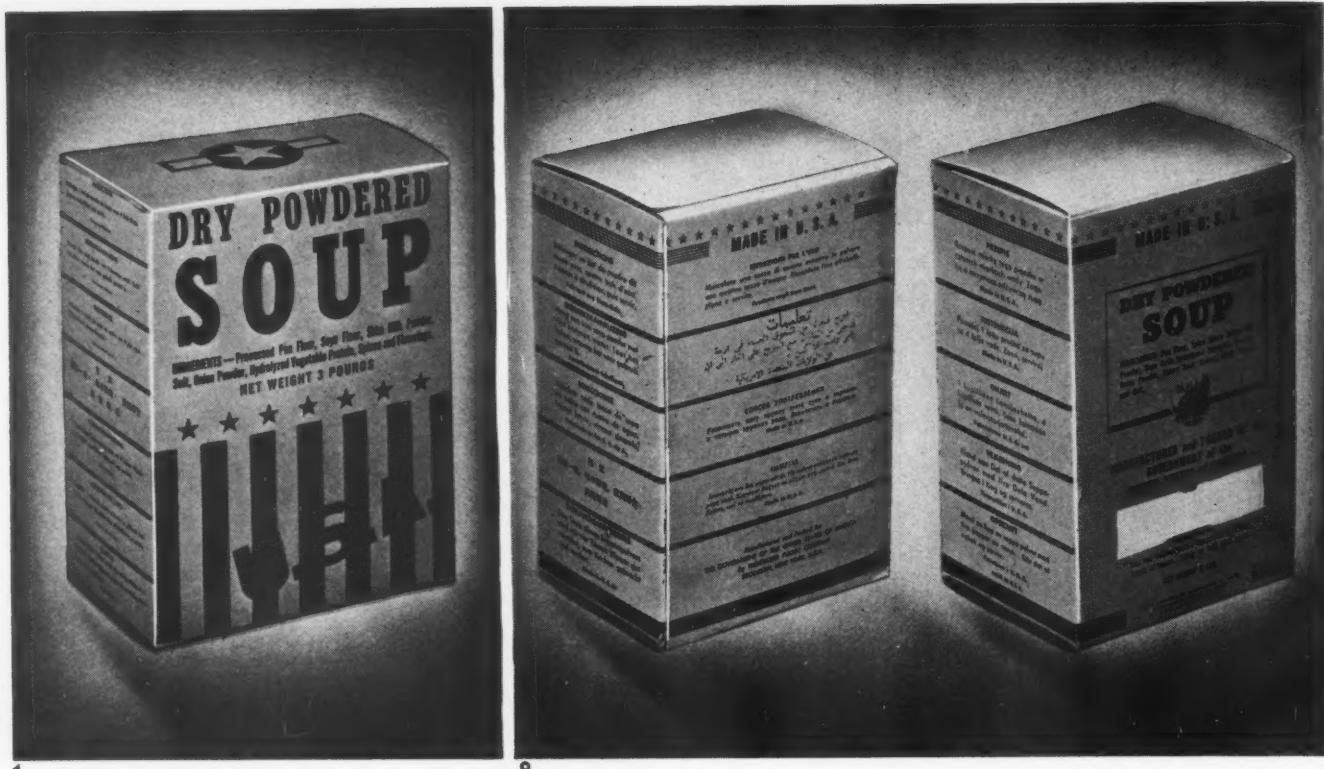


19



20





1 2 3

LABELS THAT CARRY THE FLAG

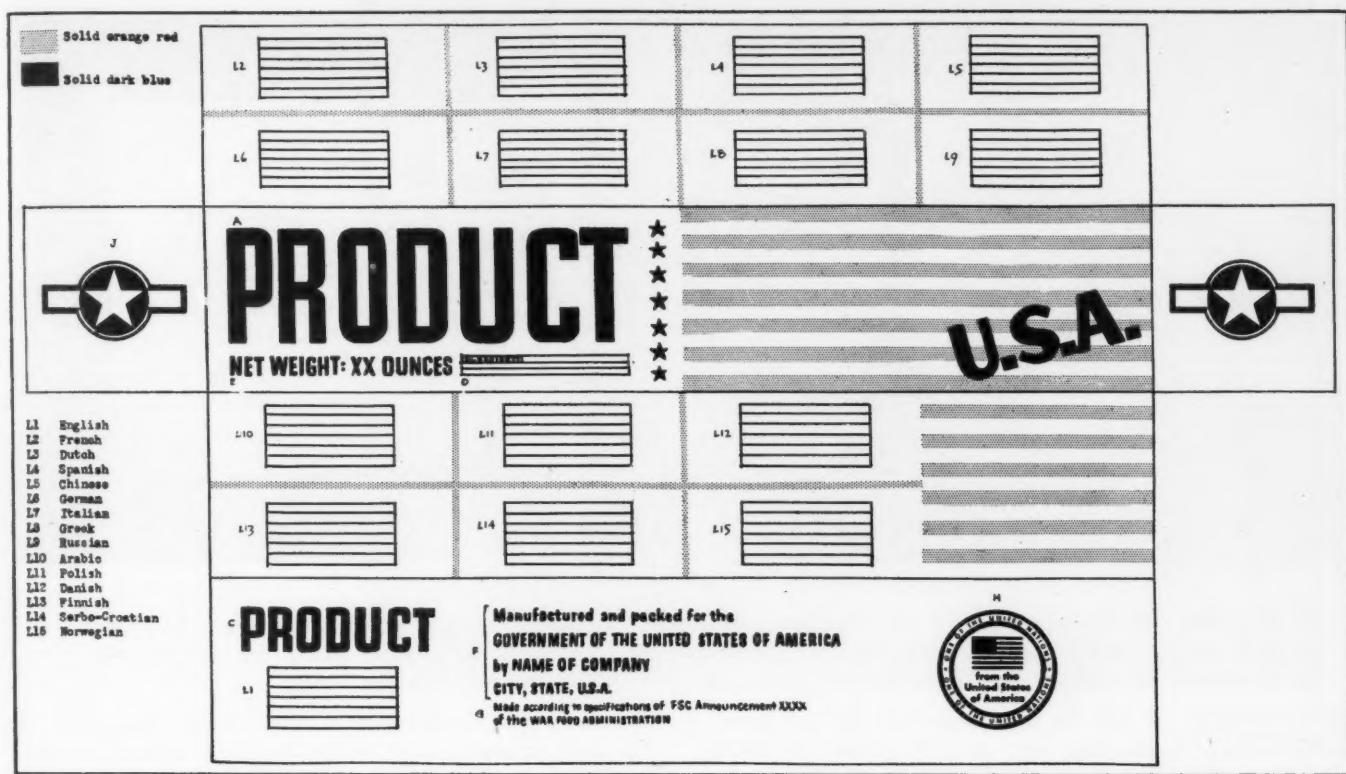
1—Soup package illustrates new standardized WFA stars-and-bars design. Dark blue "U. S. A." stands out against orange-red stripes. Note familiar U. S. airplane insignia on top panel. 2—WFA's former eagle design. Same 15-language setup on side and back panels is retained in new design. 3—The new Lend-Lease flag insignia.

There is no longer any doubt about people in other countries recognizing United States goods as American-made. The War Food Administration's standard package design and the Foreign Economic Administration's Lend-Lease flag label have been designed to show every Frenchman, Chinaman, Italian or any other foreign recipient that he is using material made and produced in the United States. Manufacturers may include trademarks and trade names as they wish.

The War Food Administration, which buys about \$5,000,000 worth of food daily for its "stockpile," instituted a package design program in March of 1943 intended not only to mark goods as American-made but to insure proper usage and identification of contents. A standard package design was created which included all pertinent information in 15 languages. The original design included a Disney-drawn eagle to identify goods as American-made. Last summer the design was improved to the present more striking one composed of the stars and bars printed in the national colors of red, white and blue. This design has been adapted to egg crates, flour bags, vitamin bottles, soup cartons, cans, etc. It is adaptable to both primary and secondary containers.

The WFA star-and-bar design is *required* only where goods are produced to Government specifications—such goods as powdered eggs, dehydrated soups, multi-vitamin tablets, etc. When goods are bought in the open market, it is not obligatory to re-package the product to include the stars and bars. Packagers are asked to use it, not ordered. But, as the program is to *assist* trade, most packagers have gone along with the program and utilized the design. Recently one large can company told WFA they could not use the design without undue hardship and inconvenience. They were released from the requirement. Other can companies,





4—Label layout and color key are furnished all Government contractors. Note list of languages. 5—All packages make provision for manufacturer's name and address; this is back panel of dry stew mix carton.

however, not faced with similar problems, have made use of the design.

WFA has prepared a set of working layouts available to vendors which includes translations in 15 languages of pertinent information regarding package contents and instructions for their preparation and use. Manufacturers and packagers filling Government orders are provided clean press proofs of the foreign language set-up from which the engraver makes enlarged or reduced plates to fit individual package size, shape and material. Regarding use of trade names, WFA reminds vendors that a trade name which may sound proper to an American may mean almost anything in some foreign country, as witness the late, unlamented "AMGOT."

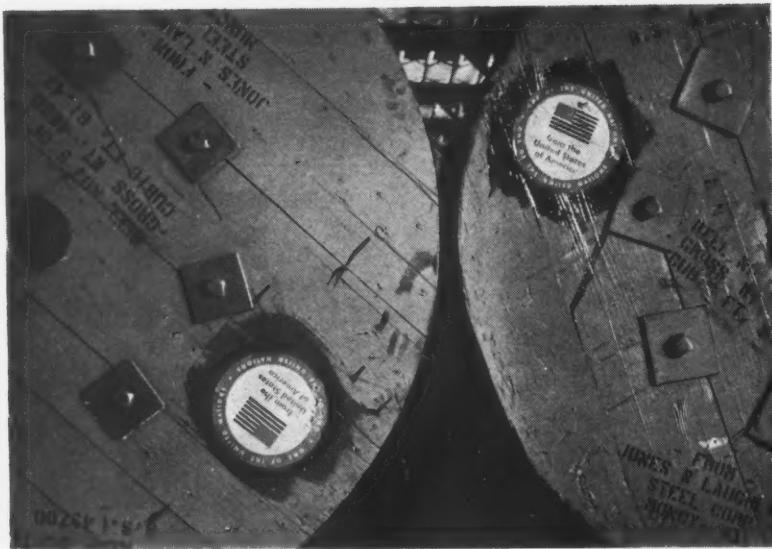
This is not the first instance of a Government-sponsored program to "advertise" home exports in other countries. Great Britain has very energetically advertised the origin and source of the many products she exports. Her slogan, "Britain Delivers the Goods," is printed in many languages and has established strong consumer respect for British goods. But Great Britain is not the only competitor this country has to deal with in the future. Certainly Russia will make a concerted bid. And the South American trade that formerly absorbed the United States' excess production will provide a ready market for new fields of production appearing in that country now.

As distinguished from the WFA packaging design, the Lend-Lease flag label is merely an insignia. The people in North Africa, the Middle East, in the Mediterranean area and other Allied lands, who are now using American-made products, know they are eating American foods, using American tools, wearing clothing made from American cloth. They know because of the flag label which appears

in one form or another on all products now going overseas through the machinery of Lend-Lease, the Allied Military Government, direct cash purchase and subsequently with the activation of the United Nations Relief and Rehabilitation Administration, through that agency. The flag label may be stenciled on outside containers, such as barrels,

5



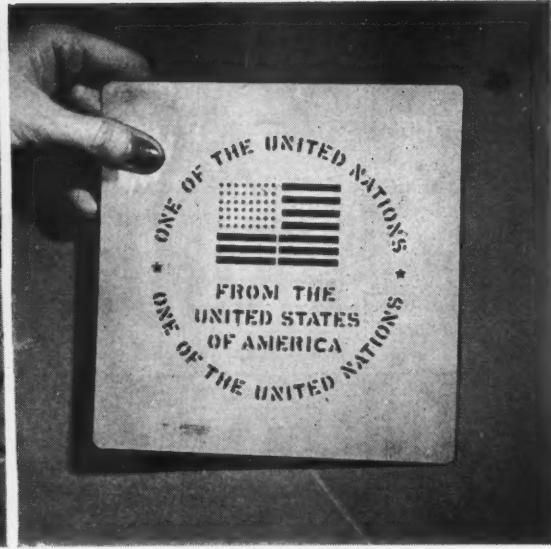


6

6—Paper flag insignia of FEA is glued and shellacked on many types of bulk containers 7—Stencil plate is supplied for stencil application of Lend-Lease flag insignia where other forms are not feasible.

crates, cartons. It may be incorporated in the individual label design of boxes, cans, jars, etc. It appears on insert slips dropped in every 10 yards of cotton cloth as the cloth is wound in bolts. It identifies second-hand wearing apparel by being placed in the form of a label in the pockets or by special tags hooked on the buttons. It is available as gummed labels that can be pasted on cardboard, wood or fibre, as a metal stencil and as a decalcomania transfer.

Some goods, by their very form and design, are self-labeling, such as the General Sherman tank and the now-famous jeep. Other products not so obvious in origin have markings in some fashion to establish their identity as American. Machine tools, for instance, have the name of the American manufacturer and the U. S. place of manufacture cast into the body of the machine tool itself with



7

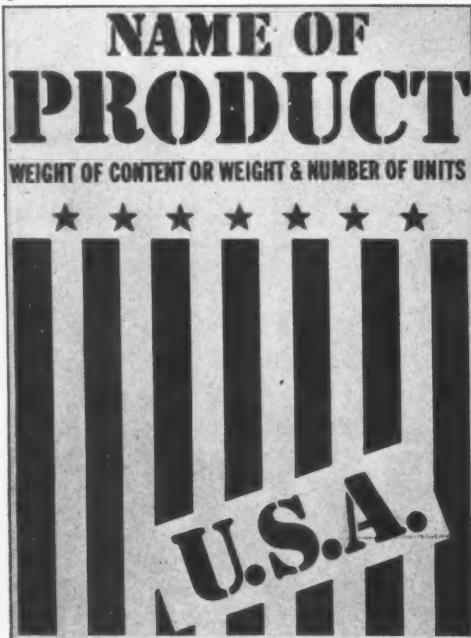
the easily recognized flag label appearing on the outside of the crates or cartons and on the sides of the boxcars moving such shipments.

Additional identification as American-made is established when Lend-Lease goods are in transit, moving on freight cars, standing in warehouses and piled on wharves. Literally thousands and thousands of people the world over have seen and will see the flag emblem of American production and manufacture.

An interesting development in the use of the flag label is the background behind President Roosevelt's proclamation permitting use of the American flag in commercial packaging. Prior to this announcement, there were Federal and State rules and customs relating to the display of the United States flag that prohibited (Continued on page 144)

8—This is WFA's imprint or stencil for outer containers, sometimes used in place of paper labels.
9—Tag for Lend-Lease clothing (right); sticker in French and Arabic, for North African shipments (left).

8



9



The material for this bag is so flexible that men armed with pistols, rifles and machine guns can manipulate the trigger and begin firing without removing the wrapper.



Waterproof gun boots that float

Tough, waterproof covers for firearms, or gun boots as the Army calls them, are essential to modern amphibian warfare. They must be made so that triggers can be pulled instantly without removing the wrap. They must float a gun if it happens to be dropped overside or while being carried ashore.

Assault troops landing on enemy shores must be in readiness for immediate action. Landings in Italy and Tarawa demonstrated that firearms must be kept dry in open invasion boats as well as during the initial rush through shoal waters to the beach.

The bag had to be easy to use and simply but tightly closed. A gun bag that is waterproof and extremely flexible has been developed for this purpose from vinyl resins. After the gun is placed in the bag, it can be closed by a simple knot. Enough air is trapped within so that the bag and gun will float for an indefinite period until they are picked up.

The material for the bag is vinyl chloride vinyl acetate copolymer film so flexible that men armed with pistols, rifles and machine guns can manipulate the trigger and begin firing without removing the wrapper.

Precious seconds saved and morale factors of assured protection are essential to the success of any landing operation. With the European invasion imminent, services of supply set out to find facilities for the number of gun boots such vast-scale operations demand.

The first bag materials were made by calendering and extrusion processes. The Quartermaster Corps, however, wanted a material of lighter gauge with greater flexibility and strength than was possible to produce by these methods. They asked a supplier of plastic films if it could develop a method of producing such a film on casting equipment. Although there was considerable doubt whether such a

flexible, elastic film could be successfully cast and stripped from regular film casting surfaces, the research staff of the company assigned to the task got to work on the problem. Six weeks after the Army's request, the first pilot production sample was made and approved by the QMC. Three months later the new material was in commercial production; a highly technical problem was solved that ordinarily might have required from at least six months to a year under normal conditions.

This special vinyl film at the present time is olive drab in color and 0.0025 in. thick. It is characterized by stretchability, toughness, high tear strength, waterproofness and heat-sealing properties. The cast film exhibits considerably better physical properties, it is claimed, than its counterparts made by the extrusion and calendering processes. By the casting method this film can be produced as thin as 0.001 in., whereas by other processes the lightest gauge appears to have been 0.004 in.

Present production is limited to gun boots, but it is hoped that increased production with some changes in formula will eventually permit use of the material for the packaging of drugs, foods and other essential war matériel, as well as for many other commercial purposes where waterproof films are required.

Postwar possibilities are wide. The material has a satin smoothness and is said to drape like a soft fabric. Military requirements demand that its color be restricted to olive drab to cut down reflection, but the film can be made transparent or translucent in delicate colors.

Credit: Vinyl resin film called Lumarith V.N. developed by Celanese Celluloid Corp. Bags fabricated by Shellmar Products Co., Mount Vernon, Ohio.



Col. Rohland A. Isker, director, QMC laboratory, meets with officers in charge to discuss problems of Army ration development. (l to r) Capt. W. A. MacLinn, Capt. C. M. Wilson, Col. Isker, Maj. R. R. Melson, Maj. D. L. Deane.

Fromhardtack to Ration K

Early in January this year, 1,000 of the country's leading technical men were invited to attend the opening of one of the most modern and complete packaging laboratories ever assembled under one roof.

These facilities are a part of the operation of the new Subsistence Research and Development Laboratory of the Army Quartermaster Corps, located on the top floor of Building B of the Chicago Quartermaster Depot at 1849 West Pershing Road overlooking the stockyards of Chicago's South Side. The laboratory occupies 20,000 sq. ft. of space and is three times as large as the old laboratory with a personnel that's doubled.

The laboratory is a triumph in the science of food processing and packaging to withstand wind, rain, water, vapor, frost, Arctic cold, tropic heat, jungle moisture, desert dust, odors, grease, gas, rodents, insects—even light rays.

The story of overseas military packaging is now so well known in packaging circles it does not bear further repetition. What does deserve consideration, though, is the lasting effect this intensive research and exhaustive field and laboratory testing will have on the art of protective packaging for many years to come. What deserves mention too is a brief review of past development while plans can be made for the future.

Ration K—which the Army Quartermaster Corps considers a high achievement in packaging art, although they are not yet satisfied with it—was not born overnight.

Into it have gone all the thought and planning of great military leaders for more than a hundred and fifty years. G. I. Joe in his foxhole may dream wistfully of Mom's apple pie as he opens his newly designed breakfast, dinner and supper units of Ration K, but these clean, nourishing cans of meat, packets of soluble coffee, lemon powder and fruit

bars with familiar trademark, are a far cry from the "chow" of other wars. Many are the tales in history books of tattered soldiers foraging for their own food or struggling to sustain themselves on wormy potatoes and tainted meats because there were no methods of food preservation. On the other hand are stories of battles lost because soldiers were bogged down by too many provisions, like General Howe's British troops at Bunker Hill so loaded with hundred pound packs they couldn't scale the heights before they were mowed down.

First recorded history of canned foods used by armies were trial cans of preserved meats tested by the British Army and Navy during the Napoleonic wars, prepared under English patents taken out by Augustus de Heine in 1810. It is said that the Duke of Wellington, himself, tried the beef preserved in this manner and "found it very good."

Large-scale canning in America began during the Civil War. Since that time, canned meats, pork and beans have become as familiar to the American soldier—and the subject for as many gibes—as the traditionalhardtack, perhaps the earliest form of "field rations."

Not until the First World War, however, did the need for "emergency rations" really become apparent, although Quartermaster records describe trials of such rations as early as 1896 and many forward-looking commissary generals often expressed a desire for such units.

In France, it was discovered in 1918 that men could be killed by a few well-aimed enemy mortar shells, if their position was revealed by the glint of mess kits in the sunlight and the clatter of tin cups when the "chow wagon" rolled up for the noonday "chow party." It was decided that something should be done to provide ration units that a soldier could carry with him, that would be light in weight and give him

sufficient nourishment without endangering his life. Many World War veterans can remember the small, square tin ration boxes containing bars of chocolate, powdered coffee, biscuits, etc., that could be carried in the pocket into combat.

Another packaged ration developed at that time was a "trench ration" to meet the danger of gas contamination. This combined 25 rations for 25 men for one day. It was a bulky galvanized iron container like a wash boiler, according to QMC records—hand soldered, water tested for leaks, dry sprayed with olive drab paint, crated in wood.

Because of its strategic location in the meat packing center of the nation and because meat is the cornerstone of an American fighting man's diet, it is logical that Chicago has become the center for the study of Army subsistence problems. The origin of the Subsistence Research and Development Laboratory goes back to 1907. Subsistence was then under the commissary general and Col. A. D. Kniskern, who developed the dry salt bacon used by the Army at home and overseas, was in charge of the Chicago commissary depot at 11 E. Lake Street.

In 1919, following the World War, plans for a Quartermaster Subsistence School were made and for years after that it was the hope of QMC to enlarge those operations and to develop a laboratory for research in food processing and packaging. In spite of efforts to sustain interest in this progress, appropriations were small. World War I was over; public sentiment in national defense was nil and Congress was lukewarm toward Army expenditures. During the early part of 1936, because of lack of funds the laboratory was discontinued, only to be reopened two months later, July 24, 1936, when affairs in Europe again looked black.

Col. Rohland A. Isker became commanding officer of the laboratory on August 15, 1939. Prior to Pearl Harbor the Packaging Branch of the Subsistence Research and Development Laboratory, anticipating shortages in the event of war, made shipments of foodstuffs to and from the tropics, employing packaging materials, other than metal hitherto not considered substantial and a solid start toward discovering and using substitute materials had been made.

The Packaging Branch has facilities for every type of package testing: mechanical tests for materials to determine bursting, tearing, tensile and breaking strength, folding endurance, porosity, sealing strength, blocking characteristics, pliability; chemical tests for materials, such as water-vapor permeability, gas permeability, flavor and aroma permeability, water penetration, oil and grease penetration, aging, abrasion. The laboratory is equipped with high-humidity chambers, low-temperature chambers, compression, tumbling and impact testing and vibrating devices. There are complete facilities for bacteriological research and research in food technology including baking, dehydrating and canning.

Research directed by the laboratory has contributed greatly in the development of water-vaporproof films and knowledge of the process known as "breathing" from within; that is, expansion from warmth and contraction from cold that will introduce water-vapor into a package by the product and thereby eventually destroy the product.

More than 150 different packaging materials for dehydrated foods have undergone severe tests and specifications have been drawn up for those recommended for use.

The Packaging Branch has also been observing methods to keep cellophane from drying out by placing moist pads inside

2—Humidity room is maintained at 100 deg. F. and 90% relative humidity. Lt. Robert de S. Couch of Packaging Branch examines effect of tropical atmosphere on case of Air Force Flight Lunch. 3—Maj. Melson removes Ten-in-one ration from water submersion tanks, where packages are examined for protective properties.





4

4—*Lt. William H. White is shown making up a sample carton, after designing and developing a new type food container to be included in Ten-in-One ration. Completed, the package will be carefully tested before adoption.*

5—*Maj. James d'A Clark submits commercial can of evaporated milk to newly devised testing machine that will probably cut the can open with one blow. Army-designed can on table has endured 50 blows.*



5

the packages. This is opposite to the dehydration method of using silica gel as a desiccant to keep moisture out.

One of the most destructive beetles that attacks stored provisions—the cadelle which bores holes in package materials—had to be combated in desert and torrid temperatures. This insect drills through wood, paper, foil, asphalts, practically everything but steel, but has lately been discouraged by a ply of sandpaper inside packing carton boards.

The laboratory has encouraged research in asphalts that will be flexible at cold temperatures and that will not soften at high temperatures. It has fostered the development of gas packaging of dehydrated vegetables; that is, the methods of removing oxygen in the container and replacing it with nitrogen and carbon dioxide.

Because of the requirements of the Quartermaster Corps, progress has been speeded up in the use of petroleum waxes in packaging and the use of resinous coatings and adhesives in the laminations of flexible films combining foil, cellophane, glassine, kraft and other materials.

In addition to Col. Isker, the staff of the laboratory includes Maj. Virgil O. Wodicka, executive officer; Dr. Jesse H. White (retired Lieutenant Colonel), assistant director; Capt. W. W. Bailey, officer in charge of animal products branch; Capt. Stuart G. Dunlop, technical branch (chemical bacteriological and vitamin determinations); Maj. R. R. Melson, packaging; Capt. Lewis A. Wright, general products; Lieut. Owen N. Tucker, cereal and baked products; Capt. Walter A. Maclinn, rations branch; Lieut. George Gelman, conservation; Miss Marion C. Bollman, head dietician; Capt. M. E. Highlands, fruit and vegetable products branch.

Maj. D. L. Deane of the Veterinary Corps is stationed at the laboratory as Liaison Officer. Since the Veterinary Corps inspects all the animal products which the Army buys, this

gives the laboratory staff the advantage of direct contact with the agency which interprets and enforces specifications on meat products.

Lt. Comdr. R. E. Silver is the Navy Liaison Officer stationed at the laboratory to coordinate technical information.

Other than the military personnel are civilian food technologists, technicians, secretaries, a number of them women.

The aim of everybody at the laboratory is to provide fighting forces with the best tasting food that can be prepared. If it is packaged food, they want it to be right. They are never satisfied and daily are trying to improve specifications for processing and packaging that will make the food taste as good when unpacked—even if kept more than a year—as when it left a manufacturer's plant. The entire personnel of about 60 constitutes a taste panel and every item of food that comes to the laboratory for tests is tasted by this group. The theory is that a panel of 60 men and women is a fairly representative group, and from it, some idea of the taste preferences of the average American soldier can be gained. Luncheon is served in a mess hall. Menus are from the test kitchens and staff members who try the foods have dubbed themselves the Guinea Pig Luncheon Club.

"While the Packaging Branch of the Quartermaster Corps Subsistence Research and Development Laboratory is rapidly solving many of the problems that confronted it at the beginning of the war, there is still much to be done," said a recent news release from the laboratory. "Procurement of plus-quality foods is not enough in view of the present type of warfare. Scientific packaging plays an ever-increasing part and new challenges present themselves every day. However, reports from actual battle fronts are proving conclusively that the laboratory is on the right track and more and more food is reaching destinations in perfect conditions."

INNOVATIONS IN PENICILLIN

An interesting variation in penicillin packaging methods, recently described,* is being used by the Commercial Solvents Corp., which has just brought into production at Terre Haute, Ind., one of the largest penicillin plants in the world. Using the new 'deep tank' fermentation method of production, the Terre Haute plant has a rated capacity of 40 billion Oxford units of penicillin a month.

In packaging, Commercial Solvents employs the "wet" method similar to that of Reichel Laboratories and other producers. In this method the liquid concentrate is frozen and then reduced to a dry powder by desiccation under high vacuum—all in the final container. The new plant, incidentally, is the first to make use of new diffusion pumps which produce vacuums well beyond anything previously accomplished and greatly speed the drying process.

Commercial Solvent's principal packaging innovation is in the form of container and seal. While other producers are generally using flame-sealed ampules, with or without rubber valve stoppers, C.S.C. has adopted a small, flat-bottomed round bottle with a stopper plus an aluminum seal and an over-all aluminum dust cap (Fig. 1). In use, the outer cap and the center of aluminum seal can be instantly stripped off, exposing the rubber stopper. This stopper has a thin center section which can be readily pierced with a hypodermic needle. By so doing, the physician can introduce physiologic salt solution and thus make up the penicillin solution and remove it without actually opening the original package. Since the vial can readily accommodate 20 cc. of liquid and

contains 100,000 Oxford units of penicillin, it is easy to prepare a solution containing 5,000 units per cc.—the most common concentration for administration. The solution can be withdrawn as needed and without ever exposing it to the air.

Since the production capacity of this plant is equivalent to 400,000 packages per month of 100,000 units each, or approximately 15,000 packages per day, it was apparent that a

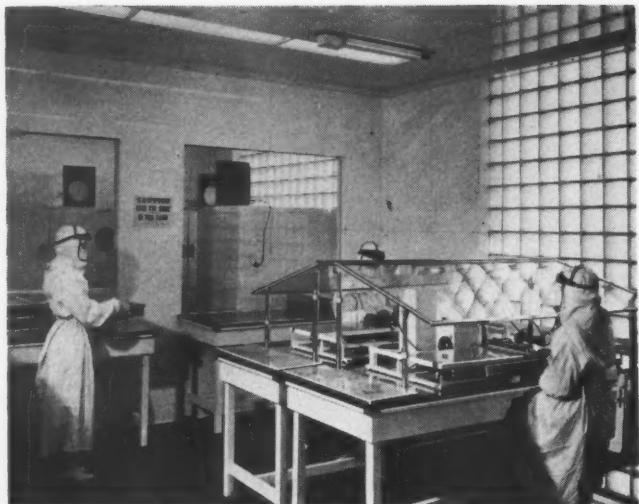


* "Penicillin," MODERN PACKAGING, February, 1944, p. 53.

1—Aluminum dust cap is removed (center), center seal is stripped off and rubber stopper pierced (right) with syringe needle. Saline solution is thus injected and the resulting penicillin solution removed as desired for administration without otherwise destroying the seal.

1





line flow had to be developed to handle the filling, drying and packaging problems satisfactorily. In addition, as usual the necessary operations had to be carried out under aseptic conditions to prevent possible contamination which would render the penicillin unfit for clinical use.

It was evident that the dry weighing process did not lend itself to speedy mass production. On the other hand, the "wet" filling process appeared to be adaptable to the uniform mass production technique desired. It was therefore selected.

After the decision on the "wet" method had been reached, it was necessary to find a suitable container and adequate processing equipment for the drying operation. The containers had to be made of clear glass as specified in U.S.P. XII, p. 567, "Containers for Injections." The question immediately arose whether flame-sealed ampules or rubber-stoppered vials were the more suitable.

Consideration of the two types of packages led to the choice of the rubber-stoppered vials for the following reasons: First, the final closure operation appeared more suitable to mechanization. Second, a large neck orifice for the escape of water vapor could be easily obtained. Third, it was believed that it would be easier to dissolve the contents of the vial and withdraw only a portion thereof under aseptic conditions. Fourth, it would be possible to store any unused portion of the vial's contents under aseptic conditions.

Following the above decision, a glass company, a rubber company and an aluminum company were contacted and requested to develop a suitable rubber-stoppered, sealed vial. This was done in a relatively short period of time by the above companies and resulted in the first glass vials to be used for penicillin packaging.

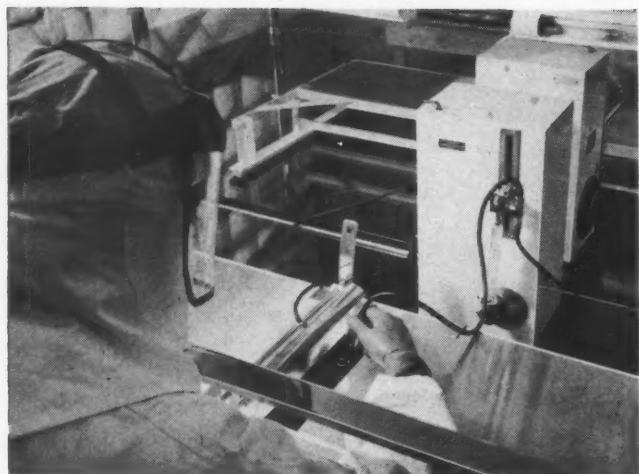
The use of rubber-stoppered vials eliminated some bottlenecks in the production line. To simplify the packaging procedure further, the vials were arranged in racks set in covered copper boxes. By this simple device, 90 vials can be handled as a single unit.

The vials, as received from storage, are inspected and placed in the racks and sent to the washing and sterilizing room. The complete unit (vials, rack and copper box) is washed and sterilized. This assembled unit remains intact through the filling, freezing, drying and stoppering operations. Considerable extra handling is thus eliminated. Moreover, the individual vials are not touched by human hands from the time they pass into the washing room until they are capped.

The filling equipment had to be accurate in the quantity of liquid concentrate delivered and easy to clean and sterilize. An automatic pipetting machine was selected which delivers a predetermined amount of the liquid concentrate, accurate to within 0.05 ml., directly from the bulk container into the individual vials. After each lot, the entire filling system is dismantled, washed and sterilized.

Since the concentrate obtained by Commercial Solvents production process is of high potency, only 3 to 5 ml. of concentrate are drawn off into each 100,000-unit container. To freeze the liquid concentrate, the assembled unit (i.e., copper box, rack, vials) is placed in a quick-freezing unit. The small volume of liquid in each vial makes "shell" freezing unnecessary.

One of the major problems was the dehydration of the frozen material under high vacuum. Vacuum ovens had been in use in the dehydration of blood plasma which were so constructed that it was possible to evacuate them to exceedingly low pressures. A battery of the ovens can easily handle the daily production; 15,000 vials can be dried at one time in the present equipment. Again, the entire assembled units



2—General view of filling room in sterile area. Note sterilizing lamps. 3—Pipetting machine delivers predetermined amount of penicillin liquid concentrate to each vial. Note that only one row of vials is exposed at a time. 4—View of the cold room, showing quick-freezing unit.



are placed in the drier, eliminating many of the handling worries.

The capacity of the company's steam boiler plant forbade the use of steam-operated vacuum jets. Therefore, it was imperative that other means of evacuating the drying ovens be found. By means of the special diffusion pumps, extremely low evacuation could be obtained.

After drying, the tray is taken to the capping and sealing room, where the rubber stoppers are inserted manually. The stoppered vials are then removed from the copper boxes—the first time the vial is handled since prior to washing. An automatic sealing machine seals the stopper in place with a strip of aluminum. After inspection each lot is stored in a refrigerated room until completion of control tests.

All operations must be carried out under conditions which will assure sterility of the final product. Elaborate precautions are taken to fulfill these conditions. The entire packaging area is designed and constructed along the lines of an operating room in a modern hospital. All the rooms, from the vial washing room to the capping room, have vitra-glass walls and ceilings. All sharp corners have been eliminated by means of 45 degree angles. The design of these sterile rooms and the equipment for filling vials, as well as the aseptic technique used in the operation, are patterned after the system perfected by Hynson, Westcott and Dunning, Inc., of Baltimore, and were planned with their collaboration. The walls can be washed very easily with antiseptic solution.

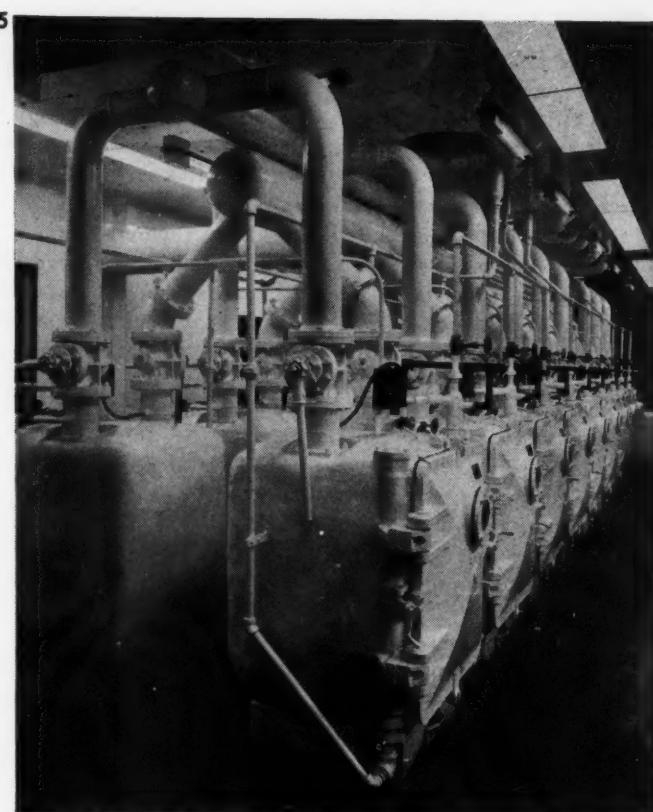
The area from the filling room to capping room inclusive is operated as a completely sterile area. All the air entering this sterile area passes through an air-sterilizing unit. The air is sterilized by means of ultra-violet light emitted by sterilizing lamps. Sterilizing lamp ceiling fixtures are also installed throughout the area.

Similar precautions are taken concerning the clothing worn by the employees in this area. On entering the sterile areas, each employee must pass through the sterile "lock." In this lock the employee washes his hands thoroughly with anti-

5—This battery of drying ovens can handle an entire day's production of 15,000 vials at one time. **6**—In last room in sterile area, stoppers are placed in vials, which are then sealed with aluminum caps. **7**—Filled vials being placed in storage container. Locked and sealed containers are held in cold storage while tests are run. **8**—Final packaging is an assembly-line operation.



5



8

septic solution, dons a sterile gown, sterile shoes, a sterile hood and a visor for protection against the ultra-violet rays. If the operation performed by the employee involves near contact with the vial or the solution (such as filling or capping) surgical rubber gloves are worn. Each employee entering the sterile area prepares for this with the thoroughness of a surgeon about to perform an operation.

Control tests are run in laboratories on random samples of each lot as it passes out of the sterile area through a wicket. A completely air-conditioned animal house was built to house the rabbits and mice used in pyrogen and toxicity tests. No vials move out of cold storage until the potency, sterility, etc., has been certified.

Finally, it was necessary to provide adequate facilities for packing the vials for shipment.

It was apparent that the packing would fall into two categories, namely, a service package for the armed forces and a consumer package.

The service package is regulated by Government specifications. Five vials are packed in a cardboard carton, which serves as the unit of shipment. Further packing must then follow specifications.

In consumer packing, however, a different problem arose.

Quantities as low as a single vial may be purchased. Therefore, to meet such possible demands, a single unit package for consumer consumption was adopted.

The vials are labeled in an automatic labeling machine. A single vial, together with a brochure bearing instructions for use, is then placed in a full-telescope box. The single unit is properly sealed and labeled.

These single unit boxes are then packed 12 to a carton. For possible shipment in dozen lots, the carton of 12 is packed in a triple-slide corrugated carton. For larger shipments, 12 cartons are packed in a sturdy shipping container.

Since speed and line flow are again essential, all packing is done on a moving belt assembly line. Labeled vials are fed on to the belt at the start and dozen cartons or gross shipping containers are discharged from the belt continuously at the end.

This entire packaging process was worked out in a very short span of time, because of the urgent need for the drug. Line-flow packaging was obtained with equipment that was readily available or adaptable. Needless to say, this organization has improvements under consideration which will more fully mechanize the packaging procedure. When time is available, such improvements will be installed to simplify the packaging of penicillin further.

Credit: Vials, Kimble Glass Co., Vineland, N. J. Rubber stoppers, West Co., Philadelphia. Aluminum seals and caps, Aluminum Seal Co., New Kensington, Pa. Pipetting machines by Baltimore Biological Laboratory, Baltimore, Md. Vacuum ovens, J. P. Devine Manufacturing Co., Inc., Mt. Vernon, Ill. Diffusion pumps, National Research Corp., Boston. Air-sterilizing unit, V-Ray Co., Fort Wayne, Ind. Sterilizing lamps, Westinghouse Electric & Manufacturing Co., Pittsburgh. Single-unit package, five-vial carton and labels by Dennison Manufacturing Co., Framingham, Mass. Shipping containers and master cartons, Wabash Fibre Box Co., Terre Haute, Ind.

9—Single-unit consumer packages are shipped in cartons of 12. Same label is used for vial, box and carton. Label for sodium salt is printed black on white, that for calcium salt in reverse. **10**—Master shipping carton for consumer packages holds 12 cartons of 12 vials each. 12-vial carton can itself be shipping container. **11**—This five-vial package is for armed forces. Ten of these go in larger carton and six cartons in waterproof box.



10



11





Protection, convenience, identification and re-use are the aims achieved in this family of industrial packages including boxes for (left) shaper cutters, (center) gear shaving cutter, (right) various hobs.

Functional design increases uses for tool boxes

The manner in which containers for specialized uses may be designed to increase the usefulness of their contents is illustrated in a group of packages now adopted by Michigan Tool Co., Detroit. These containers were planned not only to facilitate shipping but also handling and storage by the purchaser of precision gear cutting tools such as hobs, shaper cutters and gear-finishing cutters.

The shape of the containers, the material from which they are made, the manner of reinforcement, the chemical treatment to which they are subjected, the clearance between the two halves—even the printing on the outside have been selected to insure maximum functional value.

Included among factors entering into the design of each container for gear-cutting tools were:

1. To protect the ground high precision tool against damage to the hard cutting edges during shipping, storage and handling, including transit to and from re-sharpening operations performed in the shop of the user.
2. To encourage use as a storage and handling container for the usable life of the contained tool and to protect the tool from the time it leaves the shipping room until it is scrapped.
3. To provide instant and positive identification.

4. To select such sizes that the tools for which they are designed can be snugly yet quickly packed into them for shipping.
5. To design a box that could be stored in a minimum of space, yet at the same time allow for the ready removal of the tool without injury to the workman's hands.

The way in which the Michigan Tool carton has met these requirements is illustrated by the accompanying photograph. Here are shown (left) several containers for shaper cutters; (center) a carton for a gear shaving cutter; (right) a group of different sizes of containers for hobs.

Designing the proper amount of protection against injury during shipping, handling and storage into a cutting-tool carton involves a number of factors peculiar to this article and not encountered in the ordinary run of packaged goods. For instance, the steel in these finished tools is extremely hard. Since, in general, the harder a steel the more easily it can be chipped and broken, this hardness makes it quite a simple matter to ruin the cutting edges by mishandling. Any slight injury to these precision tools nullifies their accuracy and makes it necessary to either scrap them or to recondition them. Then, too, much of the high alloy steel used in Michigan gear cutters is more than (Continued on page 138)

BOXES FOR MEDALS

Not all fancy set-up boxes are in limbo for the duration. The construction of jeweler's-type individual cases for Army and Navy medals has become a good-sized operation and one which taxes the ingenuity of manufacturers in this specialized field of packaging.

According to a legend which may or may not be true, the first medals presented to our war heroes came in unattractive cases or no cases at all—which moved a high official to say that heroes were entitled to have their medals in suitable boxes.

One of the largest makers of fine containers and displays for the jewelry and cosmetic trade has set up a special department to turn out medal boxes according to Government specification. Using assembly-line methods, about 129 girls, and some men, most of them skilled workers, do the various tasks that go into the making of the boxes for medals.

The boxes are of rectangular shape, with rounded corners, covered with fine-quality leatherette, with a double border of gold-tooling on the cover, two lines of gold-tooling around the sides and a row of gold-tooling around the edge of the lower section. There is an automatic spring-hinge which makes it possible for the cover to stand up almost at right angles to the lower section. The top is lined with champagne rayon satin of good quality. The lower section is lined with champagne-colored velvet with cotton padding underneath. A "neck" or "collar" extends around the lower edge and forms a pleasing frame; it consists of champagne faille folded over cardboard. The lower section of the box has a lug to which can be attached the ribbon that accompanies the medal. Directly above this is the compartment for the button for civilian wear. The medal lies in the central part of the box. The cover of the box is of the bevel type, with an overlapping extension.

1—A box worthy of the honor. Shown is Purple Heart. 2—Preliminary operation is gold-tooling of the leatherette covers. This is done by a special machine.

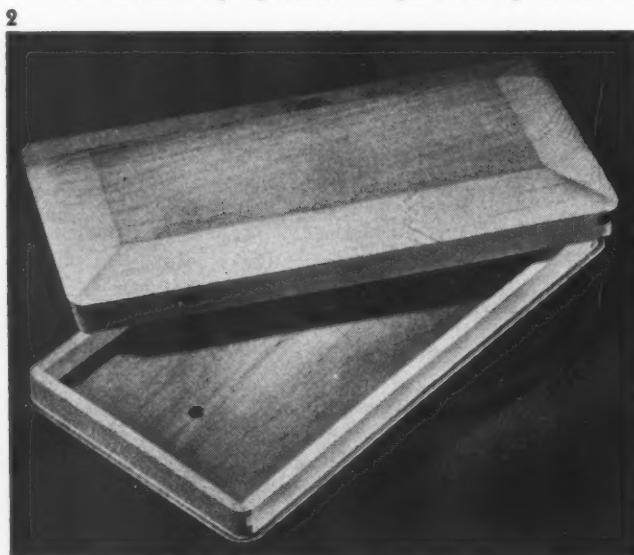


The boxes for the Army have the names of the awards stamped in gold on the cover—Distinguished Flying Cross, Air Medal, Distinguished Service Medal, Silver Star, Purple Heart, etc. The size of the standard Army box is $6\frac{1}{8}$ by $3\frac{1}{4}$ in. on the outside and $5\frac{3}{4}$ by $2\frac{3}{4}$ in. on the inside, the one exception being the box for the Legion of Merit Chief Commander medal, which is slightly larger. The dimensions of the Navy medal boxes are somewhat smaller— $5\frac{1}{4}$ by $3\frac{1}{4}$ in. on the outside, and $2\frac{7}{8}$ by $5\frac{1}{2}$ in. on the inside.

Army medal boxes were in production on the day MODERN PACKAGING's reporter visited the plant.

The work on the boxes in this plant might be said to begin with the gold-tooling, which is applied to the strips of leatherette by a special process developed in the plant. A patent has been applied for on the machine used for the gilding process. The gold-tooling is handled in a special department with skilled workers performing the various operations.

On the assembly line in the department where the boxes are completed, operations start with the wooden frames, top and bottom (currently being made of poplar), which are covered





4

4—First operation on the assembly line is the gluing of leatherette covers on wooden bases. 5—Another operator installs satin and velvet linings. A high type of workmanship is required on these boxes.

on the outside with fine quality blue leatherette. Originally skiver leather was used, but such large quantities are needed that not enough real leather could be found for the purpose, so a source of fine leatherette meeting Government specifications was uncovered. Each piece of leatherette—for top, bottom and sides—is glued on. Then comes the trimming, with sharp scissors, and then the application of the hinges.

The satin lining is then glued into the top section and the padding and velveteen lining are glued into the lower section. The hinge and spring are also covered by a layer of satin.

When a box has been completed, it is carefully inspected, to see that the gold-tooling designs join perfectly, that all parts are well glued, that the hinge opens and shuts readily—in short, that the box is perfect.

At a nearby table two young women wipe the finished boxes with a damp cloth to remove any particles of dust or glue. Another worker wraps each box individually in tissue paper, then places it in a cardboard carton which holds 10 boxes.

Shipping containers of corrugated board are near at hand; each holds ten of the cardboard cases—or 200 medal boxes altogether.



5

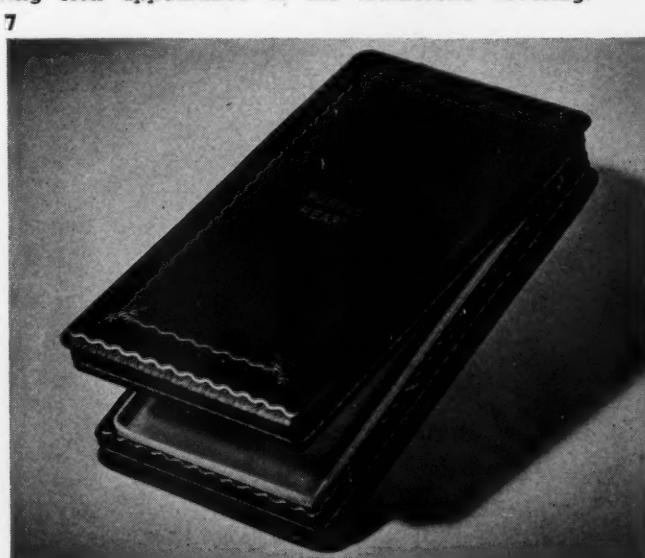
4—First operation on the assembly line is the gluing of leatherette covers on wooden bases. 5—Another operator installs satin and velvet linings. A high type of workmanship is required on these boxes.

The shipping containers have their addresses stenciled on according to Government requirements. Each shows, in large black letters, the name of the item—"Containers; Decoration"—and the individual award, "Silver Star Medal," etc., as the case may be; the number of containers and the serial number of the item. The address of the Philadelphia Quartermaster Depot to which the shipment is to be made, is also given.

The problem of obtaining the materials to put into the boxes has not been easy, even though the job entitles the firm to priorities for these materials. In the stockroom bolts of navy blue leatherette are piled high, indicative of the amount of this material needed to cover the boxes. In an undertaking of this kind, naturally, the manufacturer cannot run the risk of failing to meet production schedules, as he might if only civilian needs were involved. The combination of shortages and the necessity for meeting high standards, because of the nature of the product, has offered a challenge which the manufacturer has gladly met.

Credit: Medal boxes by Arrow Manufacturing Co., Inc., Hoboken.

6—With installation of special hinge, box is complete, ready for inspection and shipment to Quartermaster depot. 7—Close-up of finished product, showing rich appearance of the leatherette covering.



6



7

Display Gallery

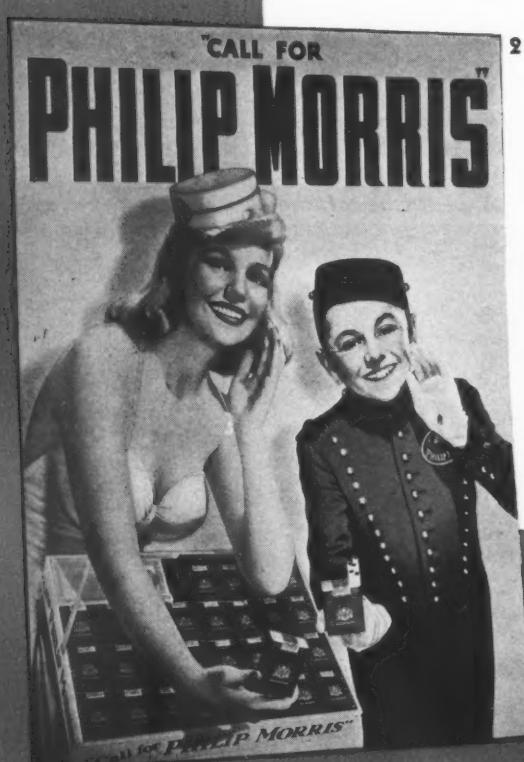


1 A substantially built cardboard counter display for Bayer's Aspirins now takes the place of impossible to get stands of metal, wood, glass or plastics. This stand is meant to be a permanent display and is, therefore, lithographed in a walnut-like finish to simulate wood. One advantage of this type of display is that it can be carried by the salesman in his portfolio and set up for the retailer's inspection. According to the company the display has proved to be nearly as rigid as the former wooden ones and is doing a fine wartime merchandising job. Display, Hussey-Woodward, Inc., New York.

2 Johnny, the familiar Philip Morris bell hop, shares top billing with a glamor girl on this brilliantly lithographed window display which measures approximately 31 by 42 in. The piece is provided with an easel and is large enough to attract attention even if used on the floor inside the store. Johnny's radio chant, "Call for Philip Morris," is the only selling message used. Brilliant oranges and yellows are the dominating colors chosen for this attention-getting piece. Display, United States Printing & Lithograph Co., Cincinnati, Ohio.

3 Made of heavy paperboard in eye-appealing colors and attractive design, this "Treasure Island Chest" by Derby Foods, Inc., can be set up easily and stocked with the full line of Derby Foods to make a profitable self-help sales unit in any store. The retailers are advised that the display can be used to best advantage for showing all 11 of the company's foods that are available at the present time. The merchandising possibilities of the island are enhanced by the current four-color advertising campaign in women's magazines to acquaint shoppers with both the foods and the display. Self-service stores in particular have found the counter of great value. Display, Magill-Weinsheimer Co., Chicago, Ill.

4 The liquor shortage has resulted in irregular store hours for many dealers. In order to advise the public of such hours many of the dealers simply scrawled the time they would re-open

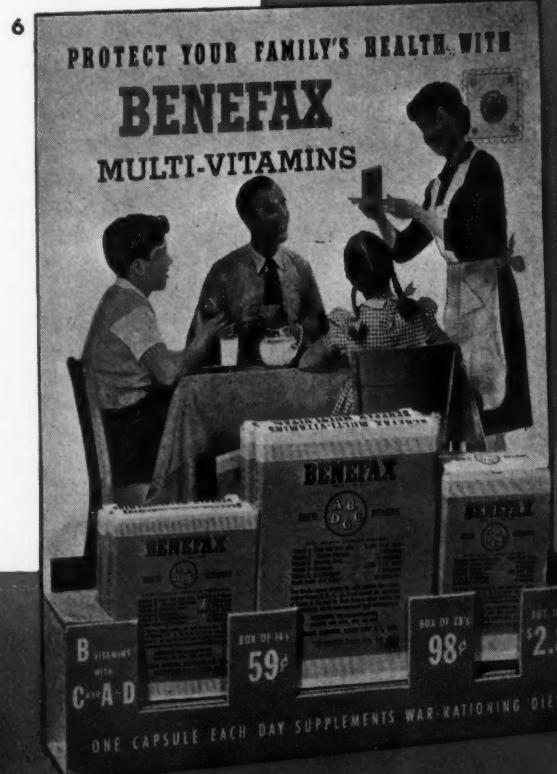
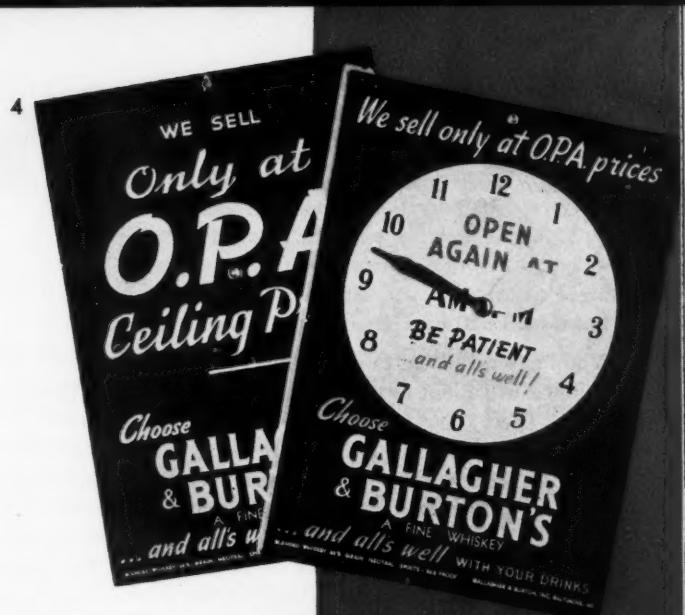


on a piece of paper and displayed it in the window. Now the William Jameson Co., a division of Seagram, has originated this utilitarian promotional piece which features Gallagher & Burton's whiskey. The cardboard clock has movable hands which can be set at any hour indicating the time the store will re-open. The reverse side reads "We sell only at O.P.A. prices" which makes the sign usable 24 hours a day. While the store is closed the clock-side is turned outward; when it is open the O.P.A. message is displayed to the public. Display, Dura Products, Canton, Ohio.

5 This new full-color display is offered to grocers in order that they may tie in with the Government "Food Fights for Freedom" war against waste. The biggest home canning season in our history is ahead, according to WFA, and Ball Bros. feel that the grocer can do no less than encourage housewives to preserve all their surplus victory garden food. She is identified as doing her part along with the women in the Armed Services by means of the slogan "You too Can Serve" and the silhouetted heads in the background. This new piece may be adapted to any type of display-window, counter or built-up arrangement of cartons and jars. Display, Forbes Lithograph Co., Boston, Mass.

6 A set of four-color process electros originally used for a color page ad in *Life* are reproduced on this counter display for Benefax, a vitamin product of The Anacin Co. In other words, the company has taken advantage of the opportunity to tie up its point of sales display piece with its national advertising. The stand is die-cut from one piece of paperboard and when empty can be folded flat and carried easily by the salesman on his route. Three sizes of the product can be displayed with prices plainly marked for the shopper's convenience. Display, Wm. C. Popper & Co., New York City.

7 Judging by the comments received from druggists all over the country this full-color reproduction of an original painting by Dean Cornwell, N.A., entitled "Conquerors of Yellow Fever," has been one of the most popular institutional pieces ever put out by Wyeth, Inc. The display can be adapted, with the use of various sidepieces supplied by the company, to almost any size window space the druggist cares to use. Its main point is to stress the importance of the druggist and the doctor to the community in this wartime world of today. The display can be further supplemented by the use of shadow boxes for bottles and boxes of Wyeth products if the window is spacious enough. Display, Einsohn-Freeman Co., Long Island City, N. Y.



IN THE EYE

a letter to the Editor

by Josephine von Miklos

DEAR MR. EDITOR:

You have asked me to put in my two-cents-worth and tell you how I feel about beauty in packaging. Well, that's easy. The way I feel about it is this: No beauty, no packages.

But of course, it isn't quite as simple as that. There does seem to be some question about how important beauty really is when it comes to packaging, or perhaps how much of a luxury it may be. If there were no question about it, you couldn't have said in your March editorial: "Later, consumer convenience and the merchandising considerations of package appeal will stage a strong come back and eventually package beauty will return. . . ."

Why, Mr. Editor, you astonish me. You seem to believe that beauty in packaging is the last thing to be thought about. You sound as though protection, economy, practicability, avoidance of waste in wartime packaging automatically excluded beauty.

Naturally, in war, or, for that matter, at any time, protection, economy, practicability, etc., are the first merchandising considerations of a package. Whether we think of foods, cosmetics or hats, a container has to be appropriate and it has to work. Also, it has to put a message across. But right here I venture to say that if a package does all of this to perfection, it automatically has beauty. War or peace.

Perhaps we can look at it this way. A completely unromantic thing as, for instance, a plug gauge, machined and hardened and ground and lapped to a tolerance of no more than plus or minus two millionths of an inch is to me a beautiful thing. Perhaps I shouldn't even call it unromantic. It is perfect for all human intents and purposes; it is completely self-contained. There is no argument about it and no variations of taste—no emotional quirks—can lift it to a higher level or pull it down to a lower degree of acceptance. There it is and it is right and so it is beautiful.

By the same token a package—any kind of package—whose color scheme is in accordance with the surroundings in which it is to serve, whose shape complies with its contents, whose mechanism conforms to the destined use of the merchandise and which conveys the intended message to the consumer is right and beautiful.

If we see, today, some unlovely packages in wartime substitute materials or with a lesser degree of workability, it isn't because substitute material or physical imperfection and beauty are mutually exclusive. It is, in some cases, perhaps, because the people who made them up were more intent on other and probably more important things in terms of the war than balance, color, design. It is, perhaps, because of the idea that anything sells in wartime has made us a bit careless. It may be that a good many processes not being available, we didn't think fast enough to turn around and use other processes. But by and large, there are wartime packages which have consciously or subconsciously succeeded in being beautiful in spite of hurry, scarcity and lessened quality of material and workmanship.

In other words, I am thoroughly convinced that, as in the case of the plug gauge, any package can be beautiful at any time and that we don't have to wait for abundance to create beauty. Or, if you like it better this way: there is no earthly

reason why a package should be ugly under any circumstances. We might go so far as to say that a thing that is right within its given purpose cannot fail to be beautiful.

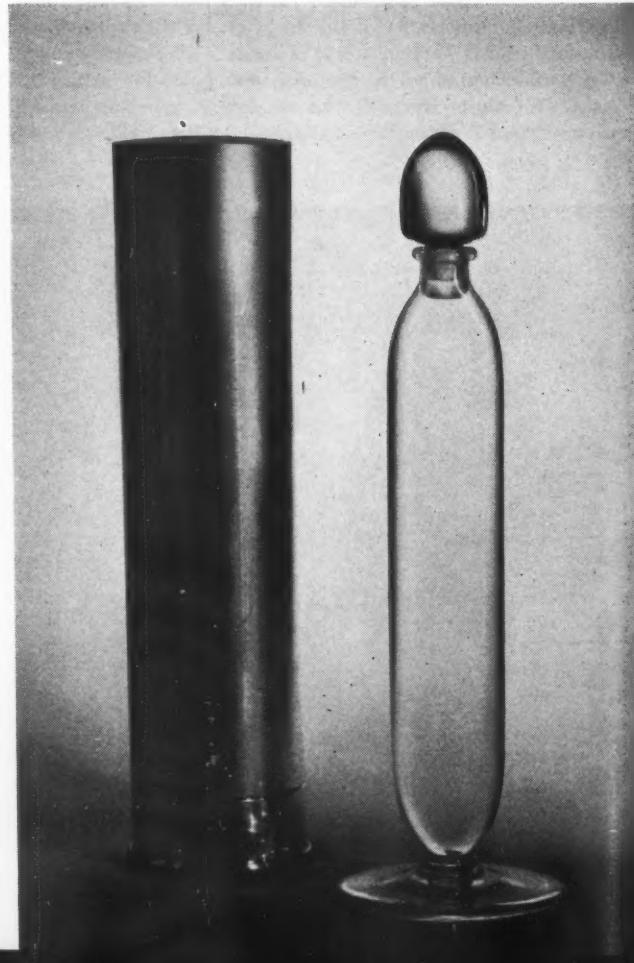
However, there is something of a hitch to all of this. First, we cannot maintain that beauty is only related to purpose. Second, in the complicated and diversified set-up of our present day civilization, criss-crossed by and intermingled with so many economic, emotional and social trends, beauty in and of itself is not enough.

There may be no direct and practical purpose in a work of art, unless, of course, we want to consider the joy and spiritual inspiration art gives us as having a direct and practical purpose, which in an abstract and transcendent sense it has. Such purpose is not, in the usual, commercial sense, salable.

We who deal in mass production and widely varied consumer goods, have long ago realized that there is another

Basic Beauty

As examples, Miss von Miklos selected two containers for sheer design, "I should say sheer beauty," she added, "the bottle is all shape, suitable for a rare perfume. The container is an aluminum tube. Without saying that light metals will seriously hamper the use of cardboard, this type of container may have advantages because of its light weight and rigidity. The bottle may be hand made or a plastic base may be glued to the bottom of a glass tube."



element involved when we speak of package beauty; it is a thoroughly human element, based on human variations, on the more pedestrian factors in the realm of aesthetics, on the whimsical changes of taste. This element is decoration.

This is, I believe, what you really meant, Mr. Editor, when you spoke of beauty again returning. You did mean decoration all right. Of course, we have had to do without decoration in many of our wartime packages. We had to do without foil papers and cellophane and over-sized gift boxes. We had to make do with a limited amount of color in plastics. We had to use plastic or paper instead of metal lipstick cases. We had to use cardboard instead of metal for a great many products. Too, we had to do without elaborate printing because we had to do without metallic inks. Nor could we make new molds for bottles and had to present stock containers of necessity designed with less imagination than private mold bottles. Even in the field of cosmetics we had to be simpler and more austere.

Still, beauty as such has nothing to do with any of this. Beauty, to my way of thinking, is an inherent and spiritual quality expressing in physical form the finest in man. Beauty is not an arguable point. Decoration is, because it is a matter of breakdown into smaller units and combinations. You

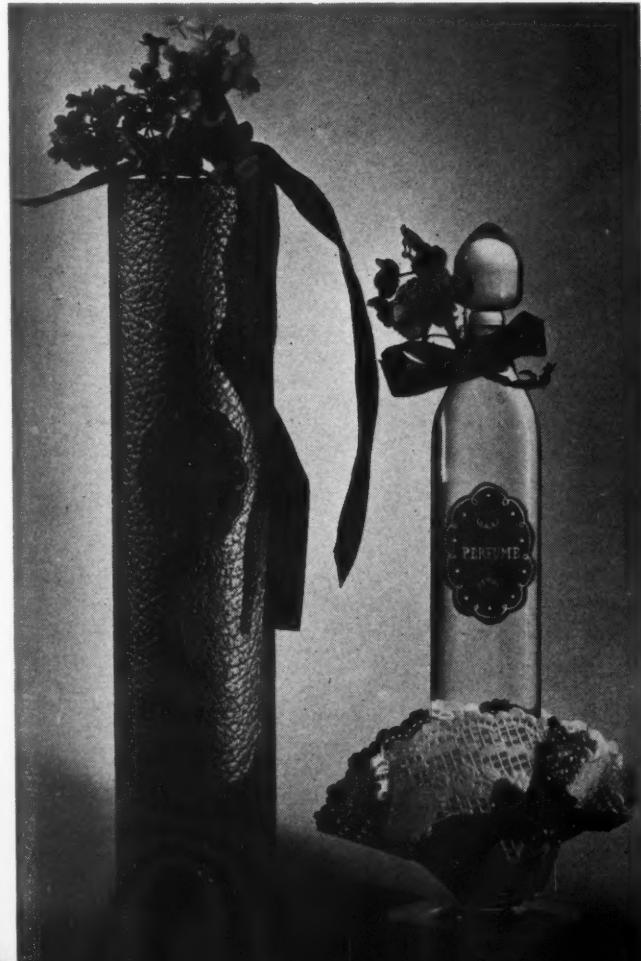
and I could sit down together, analyze a package and discuss the pros and cons of its color, its shape, its performance and the relationship of any of these to the thing as a whole. But you and I wouldn't dream of discussing whether the Venus of Milo would look better if her nose were a little wider.

As a matter of fact, many wartime restrictions placed upon packaging have not been nearly as calamitous to beauty as we had at first feared. The stripping of more or less extraneous curlicues has in many cases improved the looks of our packages. We had become a little complicated in our taste before the war. We didn't only waste materials of all kinds just because there was so much around to be used, but also because we had become so careless in our standards that we liked practically anything as long as it looked a little different from what the other fellow had if it widened the race for competition. We weren't too worried how basically right, how beautiful a thing was. We were very much worried how well a thing would strike the varying tastes of our consumers.

All of which seemed particularly true in the case of newcomers, or with promotional merchandise, designed for a quick turnover and for special occasions. Great houses with great names were less worried (*Continued on page 142*)

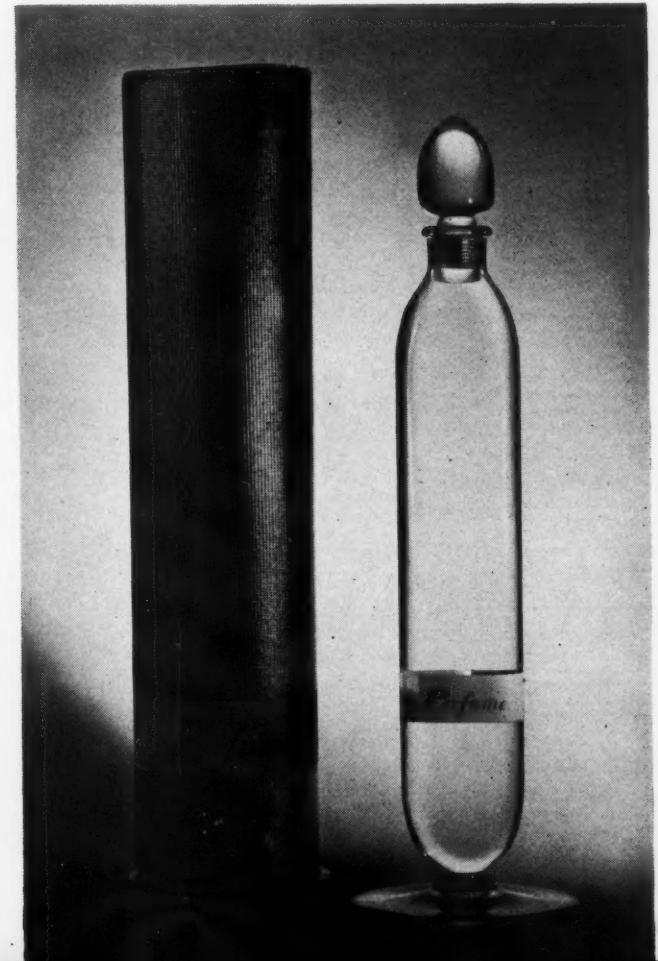
Beauty Concealed

Now look what has happened. "Here we have gone to town with decoration," she continued. "Not only does the tube look like leather—and how we love to make things look like something else—we have also added everything possible to spoil the looks of the bottle. There is only one thing to be said for this—we had fun doing it. We are particularly proud of the lace skirt which completely hides the base and the flowers that hide the stopper."



Beauty Revealed

Here decoration enhances basic beauty. Miss von Miklos suggests nothing more than a simple white label "whose sole purpose is identification, leaves the bottle alone and allows the color of the perfume to 'speak' for itself. Texture has been added to the aluminum tube. A knurling pattern, machined on the entire surface, enriches the metal. This decoration catches light, adds a pleasant feeling of 'grippability' and does not show scratches"



DESIGN HISTORIES

Tackle for fighting men

With this 3 in. square by 1 in. high molded cellulose acetate box as part of his equipment, no fighting man in sight of water need go hungry for very long. The unit, designed by the famous Canadian guide, Roy Teller, and the makers of Kingfisher Fishing Tackle, contains a varied assortment of hooks, lines and baits suitable for catching either fresh or salt water fish up to 40 lbs. in weight. A glance at the photo will show that the emergency fishing kit is a fine example of packaging art. Everything that a man could need to catch himself a meal is included in this pocket-size box.

To make sure that a man with no fishing experience gets results, instructions are permanently molded on both sides of the box. Specific instructions say, for example, "Always cook all fish taken from fresh water," and "all fish you catch (even minnows) are good to eat except one. That one is the Puffer Fish which, as soon as caught, swells up like a small football. The Puffer Fish is poisonous. Do Not Eat It."

The other side of this emergency fishing kit reads, in part, "Be careful when wading near the mouths of streams that enter salt water. Small sting rays sometimes swim up streams from the ocean. The stinger at the end of their tail can cause painful injury to legs and feet of waders."

Credit: Molding, Federal Tool Corp., Chicago. Cellulose Acetate, Celanese Celluloid Corp., New York.

Color of violets

Yankee perfumed starch has been made by Gilcor Manufacturing Co. for 20 years. In all that time the company had been using the same package design. Recently they decided to modernize the design, yet they did not want to change it in any way that would lose trade identity. The old and the new package are shown in the illustration. The new one is a symphony in violet tones. Yellow which was formerly used with the purple has been entirely eliminated. The company did this because they wanted to emphasize more strongly the fact that Yankee Perfume starch is violet scented. The floral design around the top and the base of the box has been eliminated. The suggestion of violets however has been retained and strengthened by the motif of the central panel on the face of the box, above and below the trade name. The step to change the package was taken now in anticipation of the postwar market and to have ready a package that will have more attractive eye appeal on the counters of the grocery stores and self-service markets where the product has national distribution. Lettering has been modernized on the carton and informative data and directions on the back panel have been revised and brought up to date with a stronger sales message. The starch is loaded automatically directly into the carton. There is no inner liner and a good seal provides sufficient protection.

Credit: Cartons, Acme Folding Box Co., St. Louis. Designed by this company in cooperation with M. Selednick.





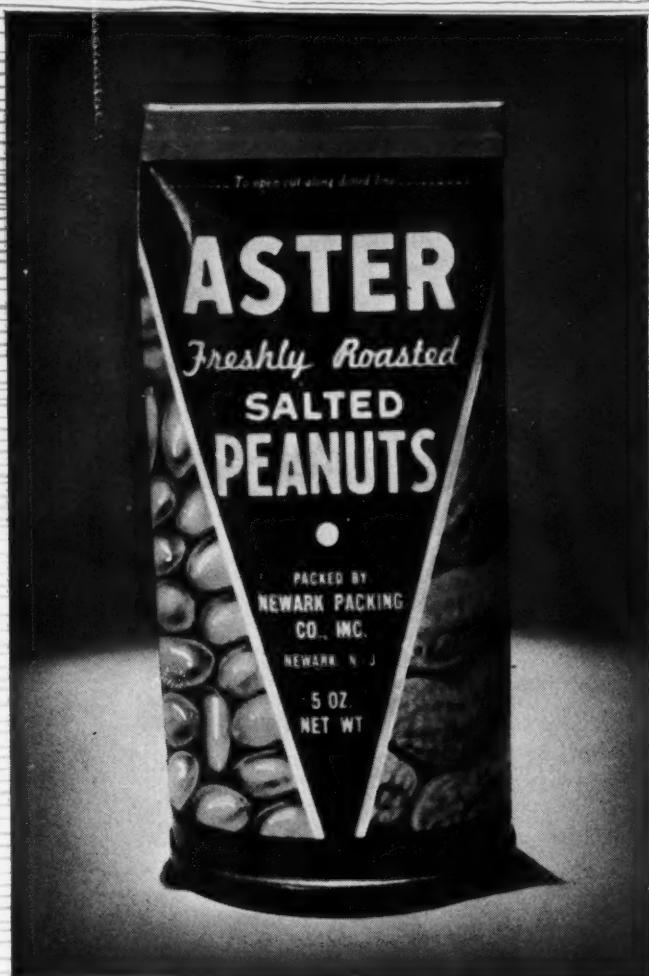
Streamlined shaves

The new package, on the right, for Kranks ShaveKreem, was designed to deliver a double sales message. First, it calls attention to itself, whether on a dark shelf or in a brightly lighted display case because of its color—a cool, light-reflecting green. Secondly, "whisker-softening Diixin" is featured on each side of the carton. The news about Diixin appears in red lettering on white to stimulate a sticker seal. The reason given by Consolidated Royal Chemical Corp., makers of the product, for spotting this news is because they feel that the addition of this ingredient has attention-getting value.

With Diixin added the cream is said to give perfect shaves with hard or soft, hot or cold or brackish water. So, naturally, the company feels it has merchandising value important enough to demand a spot on the package. Red was chosen for the lettering to make the message stand out still more.

A glance at the old package shows that the tradename along with "The original brushless shave" was the lettering which attracted the eye. Kranks, the brand name, was left in the background. The new carton identifies the brand before the eye catches the name of the product. And, with all the brushless creams on the market, that fact is no longer of great interest, so it is subordinated to ShaveKreem.

Credit: Boxes, Ace Carton Corp., Chicago. Jars, Hazel-Atlas Glass Co., Wheeling, W. Va., and Ball Bros. Co., Muncie, Ind. Caps, National Seal Corp., Brooklyn, N. Y.



Peanuts in cones

A new product goes into a truncated, paper cone—salted peanuts. The Newark Packing Co., packers of "Aster" peanuts has found that its product gets excellent grease and water protection from these cone-shaped containers. The peanuts have been arriving at the retailers in their freshly roasted condition and the shelf life of the package has been tested and found to fill the bill quite satisfactorily.

The closure, which helps protect the product, is effected by means of an enamelled metal strip crimped across the top of the container. The package may be opened by cutting along a dotted line directly under the metal closure. When opened according to directions the peanuts dispense easily and the remainder can be left in the package, which can be closed to protect the peanuts for future use.

The fact that the identifying label can be imprinted in color directly onto the paper of the package did much to convince the packager of the economy of this type of container for his particular product. The packages are filled on specially adapted automatic machines.

The cones are packed, 24 dovetailed in a corrugated carton, which makes a lightweight, space-saving shipping unit. According to the packager this type of container has many protective qualities which make it a low-cost package with postwar possibilities.

Credit: Containers, American Sealcone Corp., New York.

ALL-FIBRE CONTAINER FOR OIL PASTE

Successful now, will cost factors put it in postwar competition with metal?



by F. J. Williams and A. R. Pitrot*

White-lead-in-oil paste is now being packed and shipped in all-fibre containers. These new containers have proved very satisfactory to both producer and consumer of white lead paste and other oil pastes.

One hundred-pound units of white-lead-in-oil were previously packaged in 22 gage, welded steel containers having a crimped top. The replacement of these steel containers represents a development started in 1942 and brought to successful completion in 1943, when commercial production of the new all-fibre containers was started. Since that time these containers have supplied all National Lead Co.'s requirements for packaging of oil paste other than a small quantity of prewar metal stock or metal allocated for this purpose since that time. These replacement containers are suitable for shipment by common carrier and have been approved by the Consolidated Freight Classification Committee

by whom they are designated as "Package No. 592." Each container is so marked with a certificate of maker.

It was realized at the start of the development of this container that it must meet certain special requirements, the two outstanding being:

1. Oil-proofness, so that it would retain the paste without loss of the linseed oil and volatile thinner.
2. Strength of construction, so that it would carry safely the heavy weight encountered in lead pastes.

While paint normally weighs from 10 to 20 lbs. per gal., soft paste white lead weighs approximately 30 lbs. per gal. The problem of carrying the weight was more serious, therefore, than it would be in the case of mixed paints, with the possible exception of ready-to-use white lead paint in 5-gal. kits, where the weight would be approximately 100 lbs.

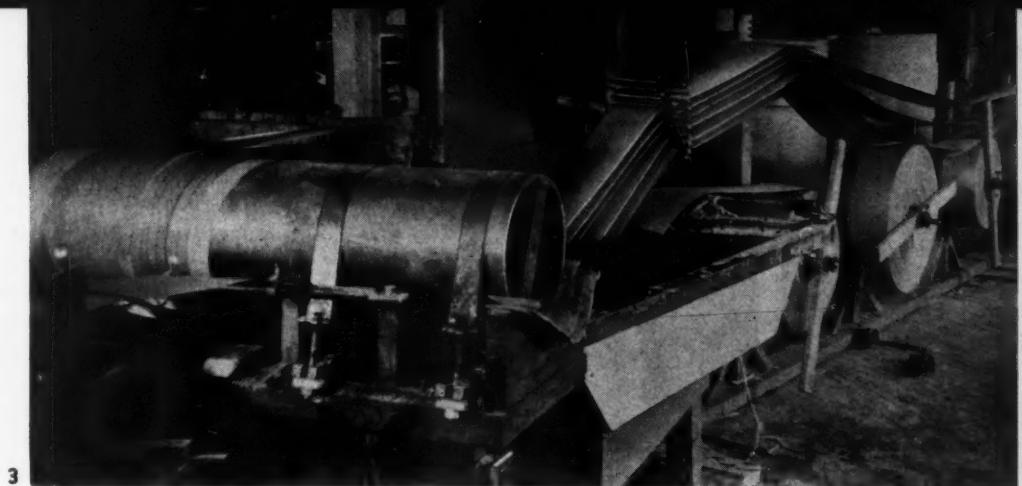
The problem of retention of oil was undertaken first, since it was considered possible to design a container properly to

* National Lead Company Research Laboratories



1—The all-paper container (left) in comparison to the steel container which it has replaced. 2—At start of production process, tube members are spirally wound. This photo shows the ring stock.

3—In winding the body of the container, numerous plies of paper are necessary for strength. Lead paste weighs 30 lbs. to the gallon, approximately 50 to 200 pct. more than ordinary paint. Paper container replaces one of 22-gauge welded steel.



3

carry the heavy weights encountered. Many materials of construction were tested but the emphasis was placed on wood and paper and combinations of these materials because of their availability. An accelerated test for retention was developed. This consisted of subjecting the filled container to a temperature of 140 deg. F. for five days. Any evidence of leakage or seepage was considered sufficient to condemn the container or material under test.

Since the test was first inaugurated a large number of replacement containers have been used by the paint industry and the correlation between the accelerated tests and actual observed results in practice has been very good. The accelerated retention test was applied not only to finished containers but also to materials of construction, such as coated papers, which might be used in oilproofing containers.

To test the weight-carrying capacity of a container, a drop test was used in which the filled container was dropped on the chime. In exploring the possibilities of a construction in original tests, it was customary to drop the container on the chime from successive heights, increasing by steps of $\frac{1}{2}$ ft., the container being dropped from $\frac{1}{2}$, 1, $1\frac{1}{2}$ ft., etc., until failure resulted. Successive drops by this graduated method invariably resulted in failure at a height lower than could be withstood in a single drop.

Consequently, subsequent samples were subjected to individual drops both at and above the upper limit achieved by dropping one container in a series of graduated drops. In this manner, two values were obtained. The first, or graduated drop result, was considered as a "research value" while the single drop height which the loaded container could withstand without subsequent leakage was considered the practical or working strength of the container.

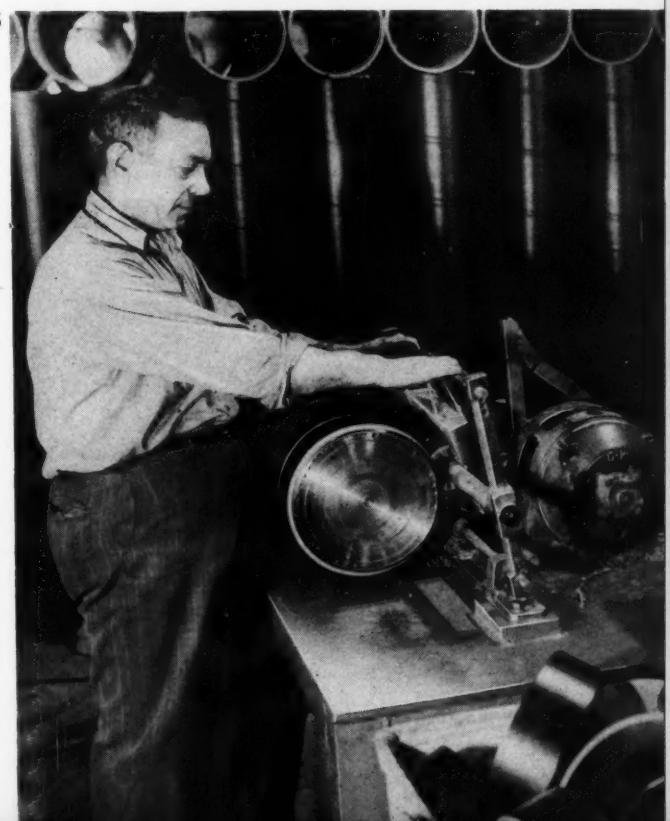
Normally the container was allowed to stand for a period of at least 24 hours following an individual drop. In order to merit certification for the height to which it had been dropped the container had to show freedom from leakage on standing, following this drop. Depending on the container construction, drops other than on the chime were introduced, such as the full head drop, in which the container was allowed to drop flush on its head (or bottom). These drops were made at the height for which the container had been found practical on the chime drop. These tests were conducted simply to determine whether or not the chime was the weakest part of the container. In normal practice in filling and handling containers, the occurrence of the chime drop is the most frequent but the chime is not necessarily the weakest point in a container.

In selecting a material of construction, wood was first considered because wooden kegs had been used for oil paste white lead prior to the use of steel. The use of wood had been reasonably satisfactory. This paste corresponded to

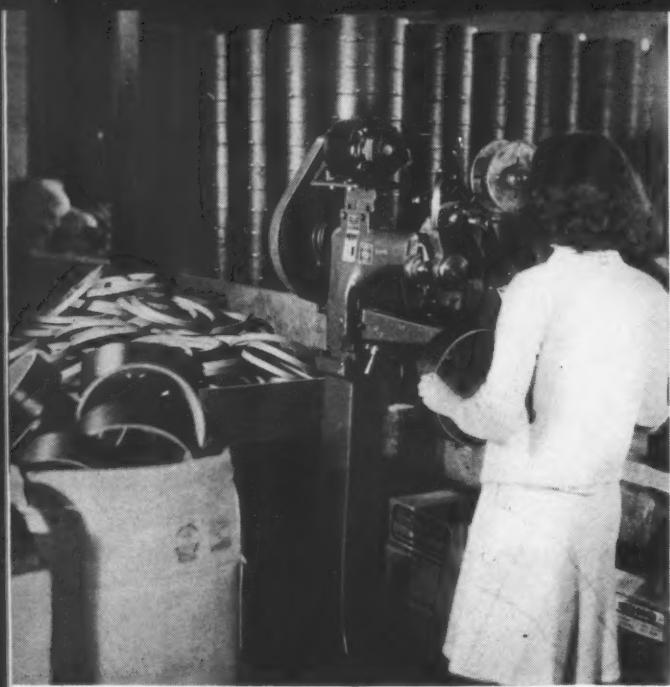


4

4 The spiral tubing is rough-cut with an automatic cut-off saw. 5—Individual parts for the container are then cut to correct lengths on a finishing spindle. Sleeves are being finished here.



5



6

what is now generally known as heavy paste white-lead-in-oil and was a two-component system comprising only white lead and linseed oil. The consistency of the paste was quite stiff, and although some oil was absorbed by the sized wooden kegs the majority of the oil was retained by the lead and the product was usable and unharmed by the container. However, the majority of the present-day paste is soft paste which, while it compares somewhat to the heavy paste in weight, contains volatile thinner such as turpentine or mineral spirits in addition to linseed oil. Such a paste is much more mobile than the heavy paste and a serious vehicle loss would result if the retention by the container were inadequate.

An exhaustive series of tests on wooden containers of varying construction indicated that the retention was inadequate.

A large number of coated papers were tested from a retention standpoint with the thought in mind that these papers might be used in fabricating a container of the bag-in-carton type. Generally, coated papers had a tendency to show pinholes, which would vary in number per square foot, depending upon the base paper, the coating material and the coating method used. Several papers were found quite satisfactory but, unfortunately, the coating material was placed on a priority basis while the papers were under consideration and the tests were discontinued. A plasticized vegetable parchment was found to be oilproof and free from pinholes.

Once the problem of oil-proofing was considered solved, attention was turned to construction which would be suitable for carrying the weight involved. Since paper was to be used as the retention medium, it was also the logical and most adaptable material of construction. Spirally wound paper tubes were found to be sufficiently strong and easily constructed; furthermore, they could be lined with parchment in the process of construction. The only weak spot in the

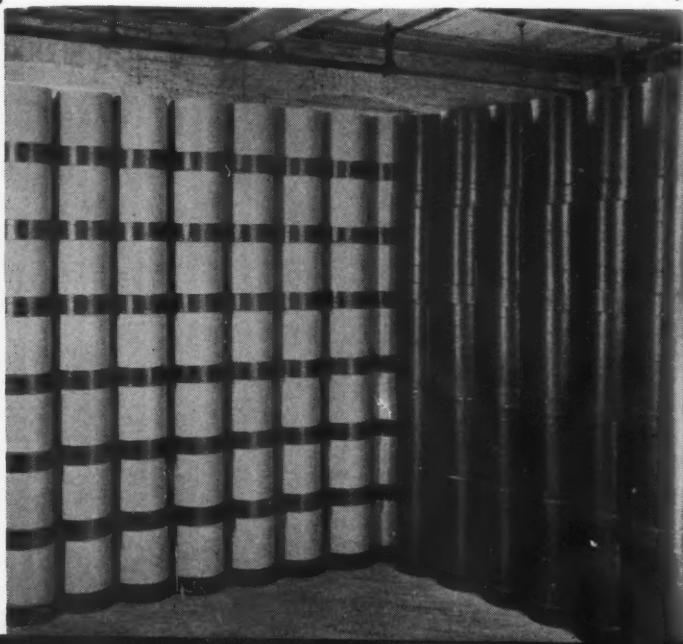


7

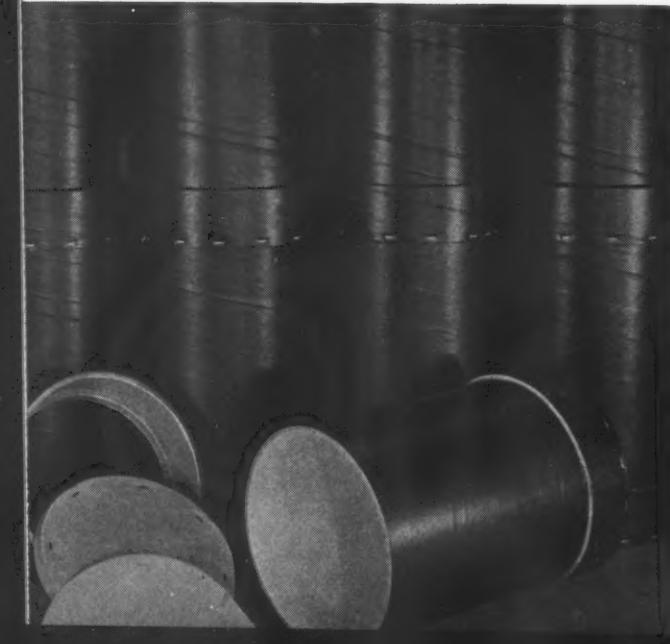
6—Rings and sleeves are stitched together to form the ring-sleeve assembly. 7—Die-cut discs are stitched together on a machine to form the disc assembly. 8—The component parts are then assembled with an oilproof glue. Each end consists of a parchment disc, disc assembly and ring-sleeve assembly. 9—Packages are here shown stored for shipment. Kraft finish is for wrap-around waterproof label, while the black waterproof finish is intended for use with the producer's small spot label.

(Page 94)

8



9



propos
ment t
the on
oil-pro

The
it is a
such s
paper
are no
was de
surfa
are m
first r
they a
spindl
of thr
sembl

In
are fa
which
second
trude
consis
snugly

In
is coa
ping
across
forced
sembl
inside
the w
sleeve
end.

10—
deliv
age
on
parc
sembr
filled
read

12

proposed system was the adhesive used in gluing the parchment at the lap. A plasticized animal glue was found to be the only readily available material which would produce an oil-proof seam and which would pass the accelerated tests.

The construction of the container is relatively simple since it is a solid of revolution with the symmetry characteristic of such shapes. The body of the container is a spirally wound paper tube lined with parchment. While parchment linings are not new in smaller sized containers, a special technique was developed in order to produce a smooth continuous inner surface in the body of these larger packages. The body units are made in one continuous spiral winding operation and are first rough cut by means of a cut-off saw, following which they are finished smoothly to the correct length on a finishing spindle. The end assembly, identical on both ends, consists of three separate units—a parchment disc, a double disc assembly and a ring-sleeve assembly.

In the double disc assembly, two laminated paper discs are fastened together co-axially—one disc having a diameter which is insertable into the body of the container, while the second disc rests on the end of the body but does not protrude over the outer edge of it. The ring-sleeve assembly consists of two sections of spirally wound tube, one fitting snugly inside the other and stapled together.

In assembling the top or bottom, the end of the body tube is coated with the same plasticized animal glue used for lapping the parchment liner and the parchment disc is placed across the end. This parchment disc is then molded and forced into the end of the container by means of the disc assembly which is pushed in place so that the smaller disc goes inside the body wall and the larger disc rests firmly against the wall. The discs are then held in position by the ring-sleeve assembly which is glued over the outside of the entire end. Trials with a large number of possible end assemblies

10—Label is affixed and package filled on scales under delivery pipe; oilproof glue is applied to filled package preparatory to closing; parchment disc is seated on glued area; disc assembly is placed, forcing the parchment into its final form. 11—The ring-sleeve assembly completes the closure. 12—Containers, each filled with 100 lbs. of white lead, are shown stacked ready for shipment. Whether or not this type container has a permanent place probably depends on postwar cost.

10



11



12



indicated this type to be most consistently oil-tight and less subject to leakage on receipt of a blow. Considerable "parchment to parchment" area is provided for sealing, and the disc assembly offers sufficient rigidity to prevent collapse of the ends.

The ring-sleeve assembly serves a dual purpose. Its primary function is to hold the discs in place and to fortify the end. However, the ring-sleeve assembly also offers an area on which the container may be rolled without damage to the label, applied to the middle portion of the body. It also offers convenient hand holds for handling the container and finally, and perhaps most important, it provides a cushioning area to prevent breakage or leakage when the container is dropped, particularly when it is dropped on the chime.

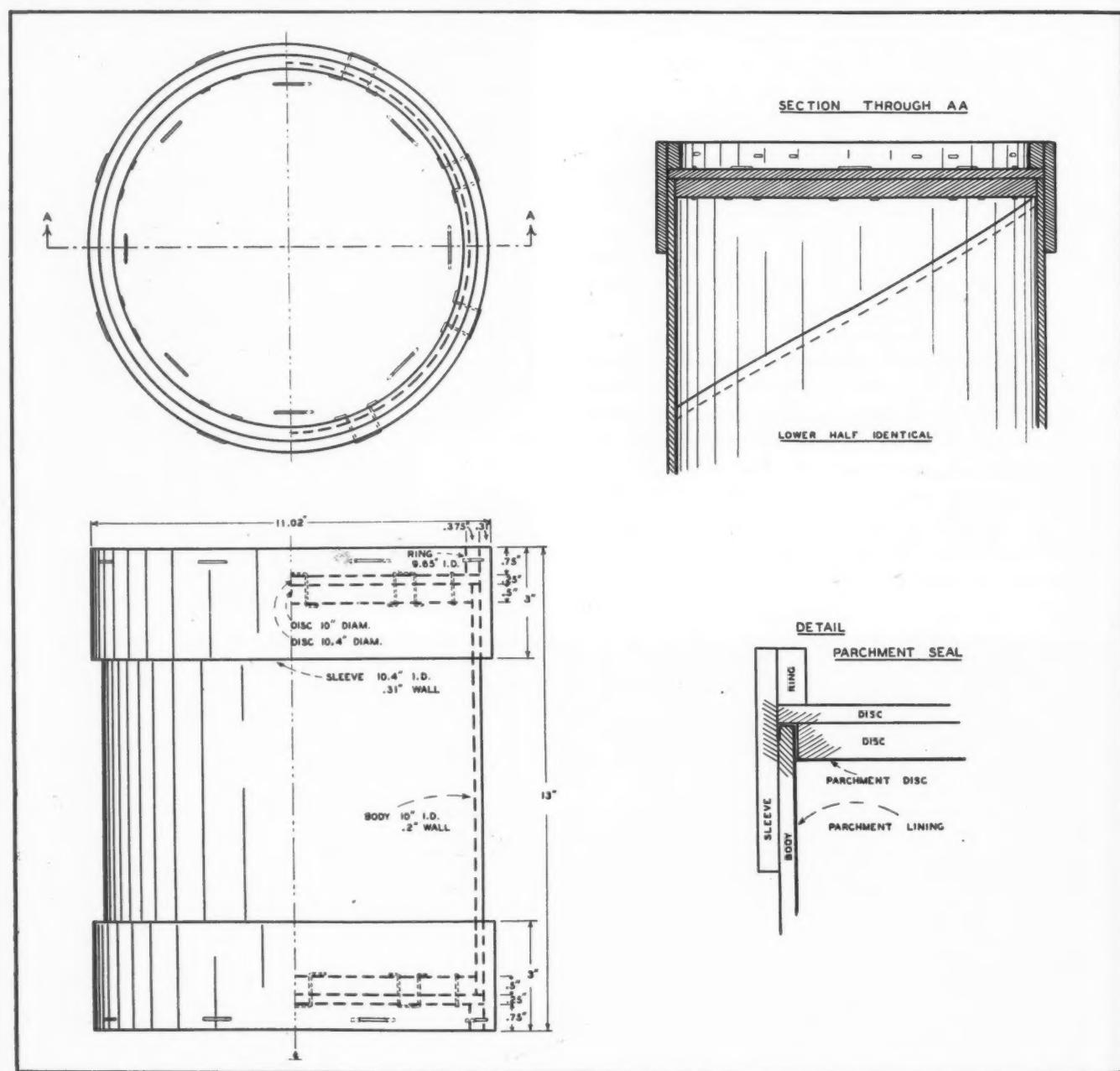
The effect of a chime drop on the container is first simply to distort or crush the exposed edge of the ring-sleeve assembly, which gives with the blow, protecting the rest of the container and preventing the seal from being broken. It is possible to drop a loaded container of 100 lbs. net from a height of 2 ft. on the chime without any damage. In fact, it is difficult to find the impact point after the drop is completed.

without close inspection. Drops up to 4 ft. are withstood successfully, although these are to be avoided if possible.

In use, one end of the container is assembled when the container is made and the other end assembled after the container has been filled. The opening of the container represents approximately the reverse operation. The ring-sleeve assembly is removed, preferably by cutting through it with a suitable tool such as a hand saw following which it may be stripped from the container quite easily. The disc assembly is pried loose with a screw driver which leaves the parchment disc glued across the container like a drumhead. This disc is evidence to the consumer that the contents of the package have not been tampered with between filling and use. For use, it is simply cut out.

Acknowledgment

Grateful acknowledgment is made to Morris Kaplan, vice-president of the Middlesex Paper Tube Co., producers of the containers, for his cooperation and assistance in the development and to the management of the National Lead Co. for permission to publish this paper.



Steel strapping kit for overseas

A good example of how a package supplier packages his own product is illustrated by the Overseas Steel Strapping Kit designed for the Quartermaster Corps by a steel strapping manufacturer.

The kit is designed for use in field operations to re-strap boxes, fibreboard cartons, crates, bundles and bales. It contains one single machine to perform all strapping operations: tensioning, twisting and cutting. Provision is made for quickly changing the gage of this machine from its original gage to one or more other gages to accommodate different sizes of round steel strapping. Also included is a container holding a 50-lb. coil of round steel strapping, a pair of pliers attached with a light, 8-ft. chain and a repair parts kit.

The shipping case is a Style 2 nailed wooden box made with $\frac{3}{4}$ in. tongued and grooved lumber throughout and has approximate outside dimensions 28 in. long, 27 in. wide and 9 in. deep. The cover of the box is hinged and provided with a check chain to hold it open in an almost vertical position so that the instructions stapled inside the cover may be easily read. The cover is also provided with two heavy-duty catches for securing the cover in place if it should be desirable to strap the box again after it has reached the field of operations.

The container for the strapping is made of spun sheet steel. Inside is a special slotted steel plate to hold the strapping machine in position. This container also holds the coil of strapping in position in such a way that it may be withdrawn from the coil without tangling.

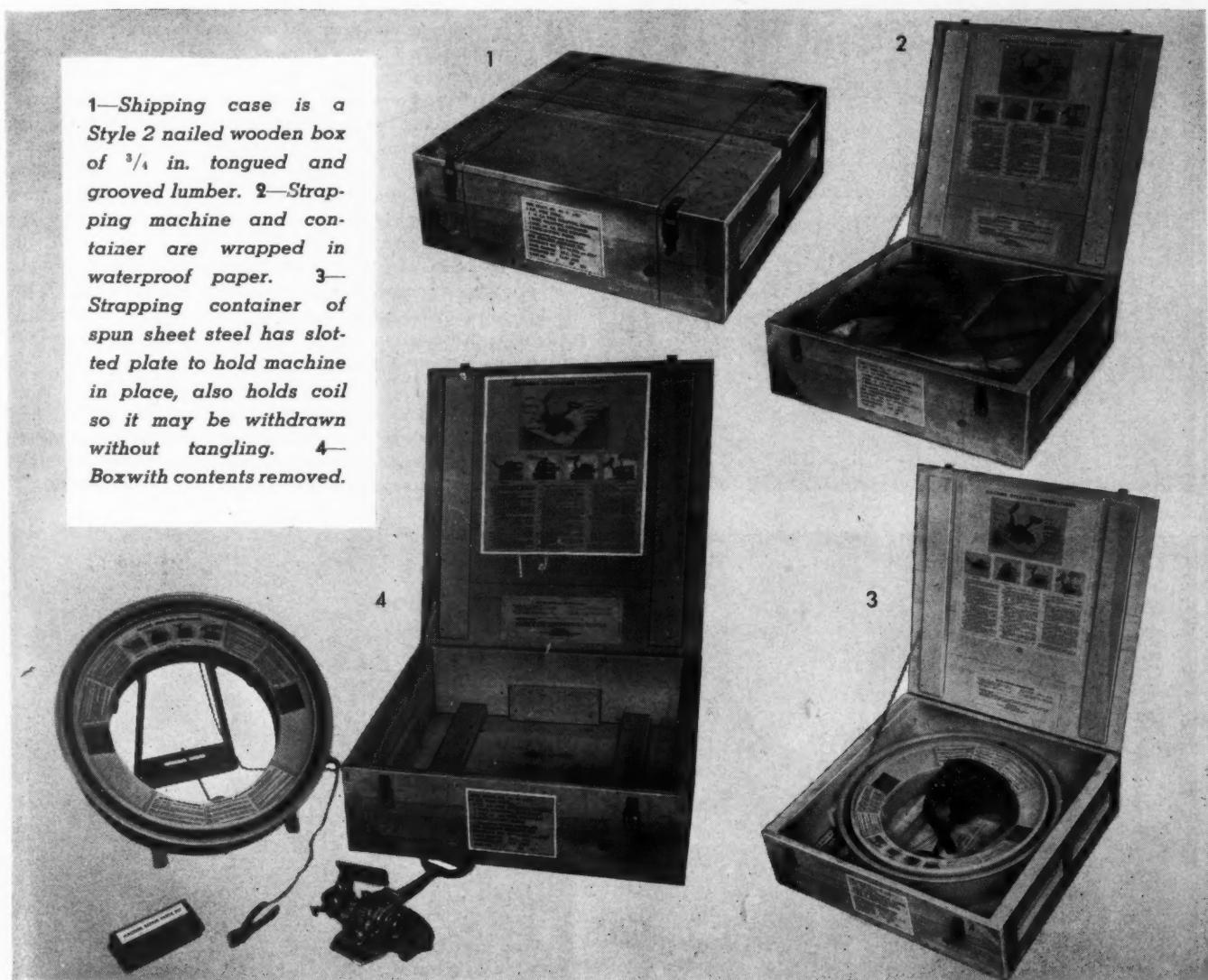
The metal repair parts box contains springs, cutters, yokes and twister pinion of proper gage for converting the strapping machine from one gage to the other, a wrench and two drift pins. Each part is properly tagged and numbered and each has been sprayed with an anti-rust preparation.

Complete instructions for the use of all equipment are secured in the covers of all the containers included. Additional lists of parts and instructions are enclosed in waterproof envelopes.

The strapping machine and the strapping container are wrapped together with heavy waterproof paper. After the shipping box is closed, it is strapped with three 14-gage round steel wires, two next to the hinges and one lengthwise centered on the metal corner protectors at the middle of the box. The unit weighs between 120 and 130 lbs.

Credit: Steel strapping kit by Gerrard Steel Strapping Co.

1—Shipping case is a Style 2 nailed wooden box of $\frac{3}{4}$ in. tongued and grooved lumber. 2—Strapping machine and container are wrapped in waterproof paper. 3—Strapping container of spun sheet steel has slotted plate to hold machine in place, also holds coil so it may be withdrawn without tangling. 4—Box with contents removed.



Packaging



1 A slender, faceted bottle of frosted glass stoppered with black holds the new perfume, "My Alibi" made by Renoir Parfums Ltd., a division of Maurice Levy Co. Its color, a brilliant, peacock-blue, was selected both for eye appeal and effective display in contrast to this company's other perfume which is in heart-red. The packaging carries out the feminine, provocative note suggested by the theme—"Put a new face on romance with My Alibi." Bottle, Carr-Lowrey Glass Co., Baltimore, Md. Box, S. Quartin, New York. Outer wrap, King Lithographing Corp., New York.

2 A new idea in shoe boxes is this lithographed one for "Cape Codders" which pictures authentic views of the cape furnished by the Cape Cod Chamber of Commerce of Hyannis, Mass. Although the construction of the box has not been changed from the regulation one, its merchandising value has been greatly enhanced by the addition of these fine halftones. The job is effectively done with the use of but one color—a cool, pleasing green. The manufacturer feels that the success of this box will lead others in the shoe field to promote various natural playgrounds throughout the country in this way. Box, Frank C. Meyer Co., Inc., Lawrence, Mass.

3 The romance of Texas, old and new, are combined to make this box for "Nutty Brown Texas Pralines" a truly ingenious wartime package. When C. A. Sears of the Nutty Brown Mills first conceived the idea of packaging his pralines directly in a mailing box he planned a very colorful container lithographed in seven colors. The very fact that it would take six weeks to get a job of this kind done convinced him that wartime shortages were real and he decided to reverse his plans entirely and get the simplest, most economical package possible. The result was a corrugated box wrapped with ordinary kraft paper lithographed in one color. The pralines, themselves, are wrapped in individual pieces of waxed paper cut from scrap ends left from other jobs. Wax paper, Kalamazoo Vegetable Parchment Paper Co., Kalamazoo, Mich. Boxes, Gaylord Container Corp., Houston, Texas.

4 Dehydrated cheese omelets are packaged in 40-lb. glassine envelopes, three to a box by King's Goat Milk Laboratory. The cardboard box is not only to protect the envelopes but to make a more convenient selling unit as well. Each package will



3



4

Pageant

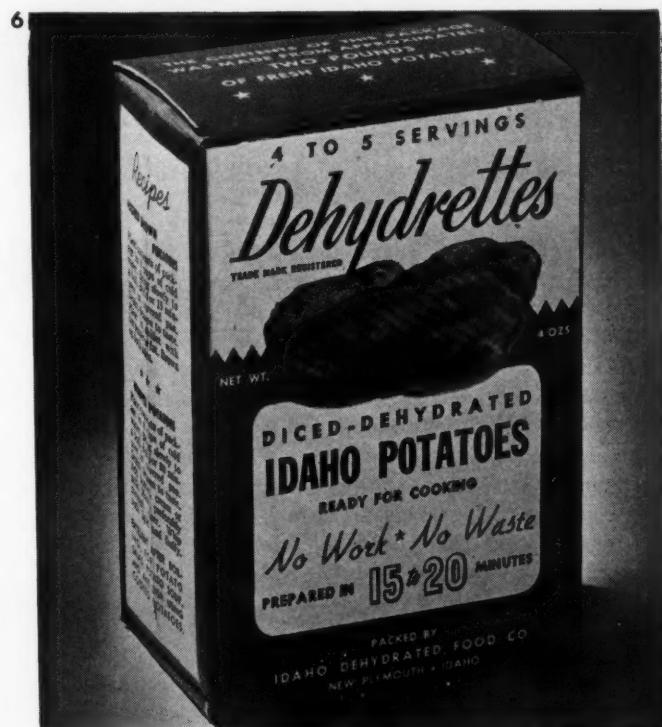
serve two or more persons according to the amount of steamed vegetables added to the powder. Bags, Kertz Envelope Co., New York. Printing of boxes, Miller Printing Co., New York.

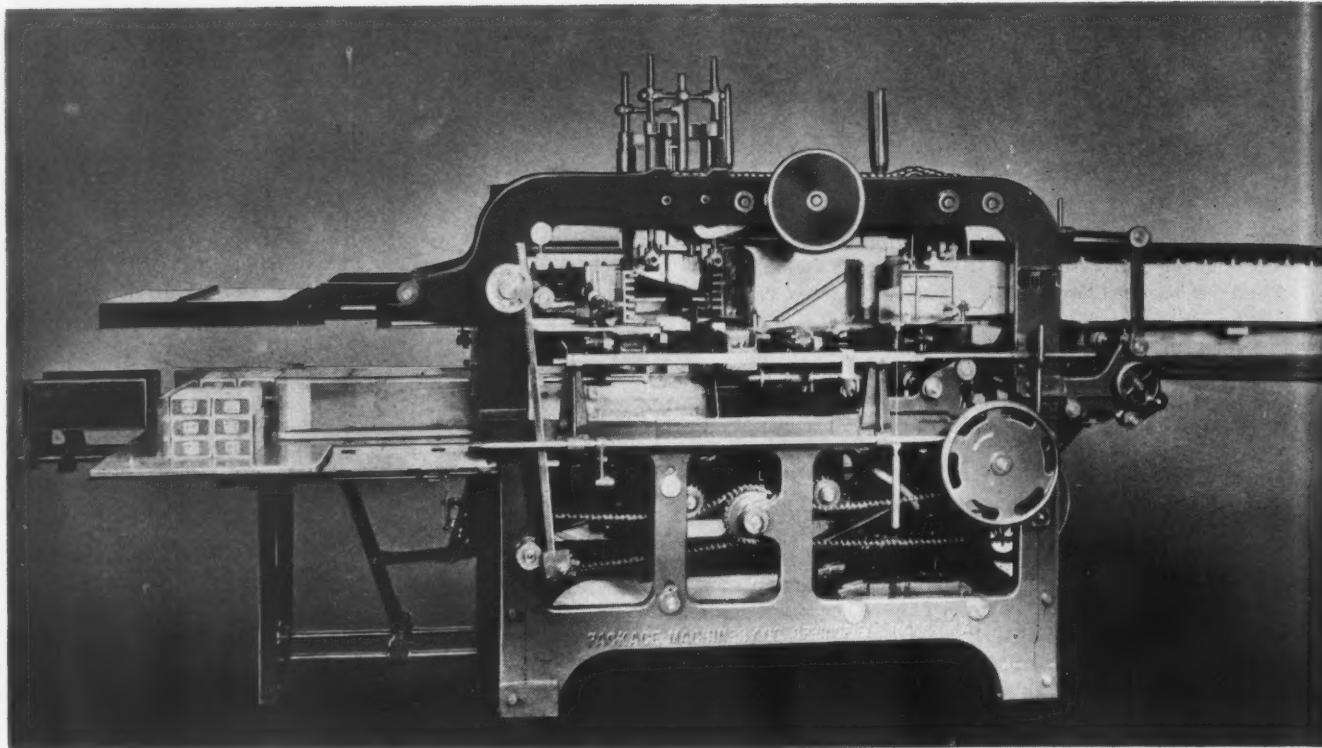
5 Just right for summer beach bags or the new, slim, coin-size purses is this new cellulose acetate rouge case by Dermetics. The powder-rouge it contains is hand compressed and packaged directly in the plastic. Case, Chase Brass & Copper Co., Waterbury, Conn.

6 Two pounds of diced Idaho potatoes are dehydrated and fitted into this small 4-oz. folding carton by the Idaho Dehydrated Food Corp. The product itself is in a heat-sealed bag of highly moisture-resistant, laminated cellophane and parchment which is said to keep the potatoes in good condition practically indefinitely as long as it is left unopened. After opening the remainder of the contents will keep for several months if the package is kept closed. The outer carton for the "Dehydrettes" utilizes the side panels to good advantage by presenting interesting variations of recipes for the use of the product. Box and liner, Interstate Folding Box Co., Middletown, O.

7 A specialty product which saves ration points is being packaged by J. E. Thuot & Co., Iberville, Quebec, Canada, in the form of muskrat meat with spices and jelly. The meat is dark, red-brown in color and tastes much like boiled beef. Thuot also cans a stewed muskrat in vegetable oil which can be used the same as beef, for stews. The meat is considered a delicacy in many portions of Canada and in the United States where it is distributed through importers.

8 Wilson's three new dehydrated soup mixes are packaged in cellophane-glassine-laminated, heat-sealed envelopes of the same color and design to maintain the family identity idea. The name of each of the products under the picture of the steaming bowl of soup and the different color of the liquid in the bowl on each of the three packages serve to identify each of the mixes. Bright orange was chosen for the color of the bag itself with the lettering predominantly blue with touches of red. Each packet makes six servings of soup when mixed with one quart of water and takes but seven minutes to prepare. Bags, Shellmar Products Co., Mt. Vernon, O. Cartons, Silver Hill Products, Inc., Brooklyn, N. Y.





1—Mechanism of new bundler stripped of auxiliary equipment. It is nearly 7 ft. high and 16 ft. long.

Bigger and better bundling

While they keep pace with the demands of war, designers of automatic packaging machines are serving the home front, ever looking farsightedly ahead and carefully planning the wrapping of peacetime products. With the diminishing supply of labor creating a problem, machinery manufacturers have come up with specially designed, high-speed machines that offset rising costs, showing immediate and tangible savings in both labor and wrapping material.

One of the latest of these is a carton-wrapping machine which is one of the largest of its kind in the world. It is now wrapping cartons of Nabisco cookies at the New York City and Atlanta, Ga., plants of the National Biscuit Co.

The bundler was designed by the manufacturer at the suggestion of National Biscuit specifically for cartons of cookies, which are difficult to bundle because of the size and awkwardness of the packages. It has the advantage of being easily adjustable and can bundle different size packages at varied speeds. It turns out neat, securely wrapped bundles within 20 in. to 7 1/2 in. in length, 13 1/4 to 6 in. in width, and 9 3/4 to 4 in. in height. The packages may be assembled and wrapped in dozen lots or in any desired quantity within the size range of the machine itself.

The machine wraps 8 to 24 bundles per minute, depending upon the size of the bundle, arrangement of the package and the speed with which the bundler is fed. At National Biscuit Co.'s Atlanta plant, it bundles 18 packages per minute of one size only. Later the company plans to use the machine for other size packages.

This machine stands 79 5/8 in. tall, is 200 in. long and 90 in. wide. One of its advantages is that very few special parts are needed to change from one size bundle to another. Most of these parts consist of cold-rolled steel pieces and wooden

pieces that can easily be made at the plant of the user. Special parts include an elevator, a wooden bottom plate and cold-rolled steel end-tuckers. The machine, which weighs about 7,000 lbs., is driven by a 1 h.p. motor at about 1,750 r.p.m.

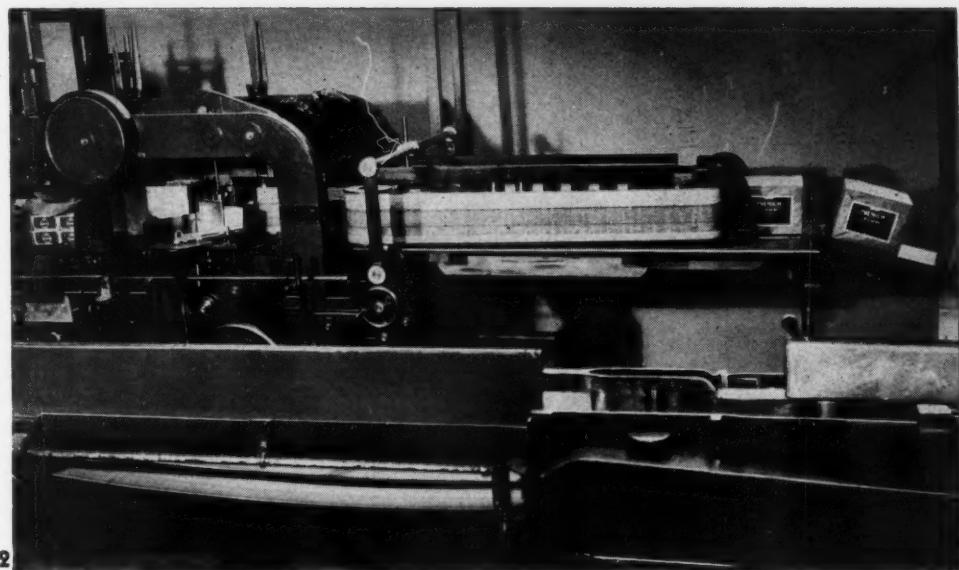
With the automatic assembler developed by the manufacturer (an assembler unit with turntable) the machine will be completely automatic. This is a new development expected to be in production shortly, but as yet not available.

In National Biscuit's Atlanta plant the machine is set up to be fed by a large and rather complex conveyor system, bringing cartons from two or more wrapping machines at one time. This conveyor system was built by National's engineers to meet their particular needs, as can easily be done by any other user of the machine.

The machine wraps bundles of cartons in roll-type kraft or other strong paper which is fed from a roll and automatically cut to size by the machine. It applies separate end-labels on both ends of the bundle and holds the folds and end-labels in position until the glue has thoroughly dried. The bundler may be equipped to handle two different types of end-seals, either sheet-feed glued end-seals or gummed end-seals that come to the machine in rolls and are then moistened, cut off and applied. National Biscuit uses the sheet type end-seal. However, Loose-Wiles, which has two of the bundlers installed at its Dayton plant, uses the gummed end seals cut from rolls.

This is the progress of a Nabisco package through the machine: The cookie cartons come to the machine on a conveyor belt. Paper is fed onto the top of the package, which is shoved up on the elevator so that the paper is automatically wrapped around three sides (the top and

2—Close-up of discharge end of machine shows belt mechanism for pressing end-seals in place. Bundles are then dropped onto conveyor belt and trucked to shipping room.



two sides). As the package is lifted up on the elevator, the end tuckers come down and make the first fold on the top side of each end of the package or bundle. Then the bottom folder comes along and folds the paper for the underlap. At the same time, the side folders travel with the bottom folder and form second end-tucks or folds. As these end tuckers reach the bundle, transport fingers also hit the package. The transport fingers move constantly and are synchronized with the speed of the infeed.

The transport fingers continue to push the package forward, away from the end tuckers and form the third end-tucks, or folds, and the bottom overlap.

As the package continues along, the final projecting paper is folded upward against the end of the package to make the fourth and final fold.

Immediately after the last fold is made, the end-seal (sheet-feed) is applied. These end-seals are placed in the feed magazines, two in number, with one on each side of the machine.

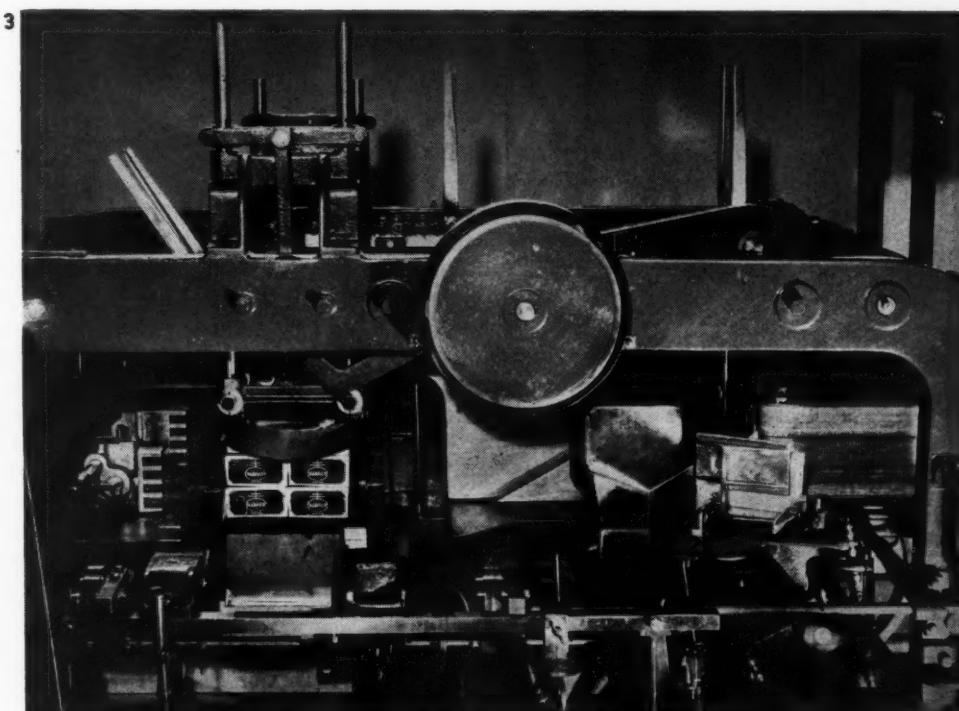
These sheet end-seals are then fed by suction into a gripper and carried around on a drum which places them against the end folds of the package.

All the while the package continues moving. The package is carried alongside the end conveyor belt for about four feet, in order to hold the seal in place and allow it to dry. The finished package of cartons is then discharged at the end of the belt and drops off onto a conveyor belt.

If gummed end-seals are used, as in the case of the Loose-Wiles installation at Dayton, they come in roll form already gummed on one side. These seals are fed past a rotary cutting knife adjustable to the size of the seal required. The seals are fed along until the gripper on the end-seal drum pulls the seal past the moistener roll and the seal is then applied in the same manner as the sheet feed seals. The seals can be from two to seven inches in width with cutoff length to suit.

Credit: Carton-wrapping machine, Package Machinery Co., Springfield, Mass.

3—Close-up of the bundling mechanism. Six packages of crackers are bundled automatically at the rate of 18 bundles a minute in this new, specially designed machine.





1—Familiar Junket package now appears in gravure-printed opaque laminated glassine, ends ingeniously sealed with non-aqueous tacky wax mixture. 2—Two-side-sealed triple-ply laminated glassine pouch for new product—dehydrated cranberries—achieves effective moisture protection with minimum of mechanical equipment.

Success stories in glassine

This is the story of two different hygroscopic food products which obtain their protection from the same kind of material, although they are put up in different types of packages.

One of these products is the well-known Junket rennet powder which has been on the market for many years. Shortly before the war this package was redesigned, new equipment was installed and the carton was overwrapped in a printed foil. Long experience and laboratory tests had shown that this product was susceptible to deterioration by added moisture. The prewar package change was made to insure better protection and to improve the decorative qualities.

The printed foil wrapper was overlapped and end-sealed by newly developed packaging machinery which deposited a film of a tacky wax mixture on the carton ends before the end folds of the wrapper were pressed in place. This ingenious end sealing accomplished two things. First, it eliminated the moisture which would have been trapped under the foil wrapper if a conventional aqueous adhesive had been used, and secondly, it provided a better seal against moisture vapor by filling the voids at the folds and overlaps.

As a result of these changes, Junket rennet powder came onto the market in a much more protective, convenient and attractive package than ever before.

However, the war demands for aluminum resulted in restrictive orders which banned the use of such a foil wrapper for this civilian use. Realizing that this would occur, the Chris Hansen Laboratory, packers of Junket, began a search for a substitute wrapper which would retain as many of the foil qualities as possible and which would operate on their new equipment.

As a result of many comparative package tests, they found that one wrapper fulfilled every requirement and was in every

respect the equivalent of the non-available foil wrapper. This wrapper consisted of a gravure-printed opaque laminated glassine with moistureproof lacquer coating over printed side.

The new wrapper had a glossy, smooth surface with an eye-catching contrast of the label colors on a clean white background. Surprisingly enough, the laboratory tests of this new wrapper run on the same packaging machine showed a level of moisture protection equivalent to the foil wrapper. The actual data are shown in the following table:

STORAGE AT 100 DEG. F., 100% RELATIVE HUMIDITY

Package	Moisture content of product		
	Original	After 6 weeks	% Gain in moisture
Foil wrapper	0.42%	0.92%	0.50%
Glassine wrapper	0.42%	0.91%	0.49%

This is an unusual case of a wartime conversion resulting in (1) complete retention of all the desirable qualities of the prewar material and (2) greater economy.

The second food product, illustrated herewith, is an envelope of dehydrated cranberries. In this case there was no previous package because this product is a result of the war-accelerated dehydration industry. The prewar product comparable to the present dehydrated form was a cranberry jelly in a tin can. Because of war restrictions, Cranberry Canners, Inc., began a research and development program to find a cranberry product which could be packaged in non-critical materials and which would give a final product equal in quality to the canned product.

When they developed a satisfactory dehydrated product they then began a search for a packaging material. The new product required protection against moisture gain and also



3

PHOTO 4, COURTESY CARRIER CORP.



4

3—Back panel of *Junket* package, showing opening feature. 4—General view of air-conditioned packaging department at Chris Hansen Laboratory, Inc. 5—Close-up of packaging machine for *Junket*, showing electric-eye paper-feeding mechanism and attachment for applying tacky wax seal. Same machine formerly handled foil wrapper. 6—Four of the machines shown in Fig. 5 in use at Chris Hansen Laboratory handling *Junket* rennet, quick fudge mix and ice cream mix.

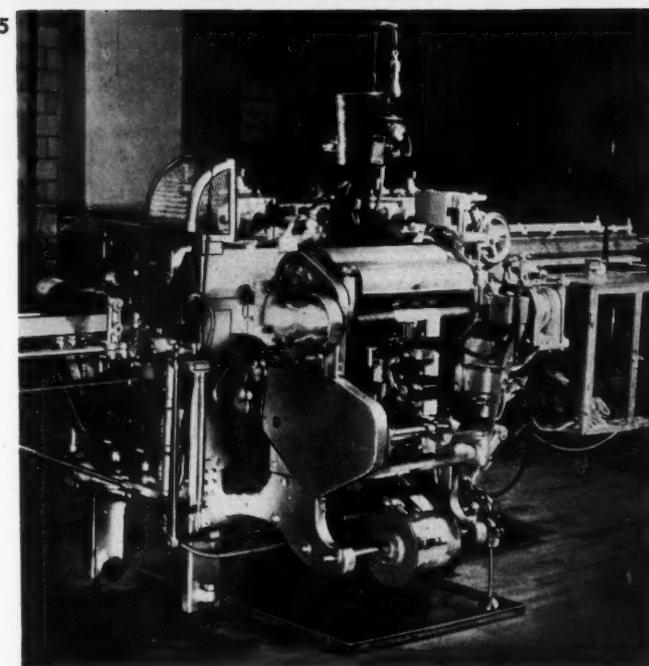
protection against infestation and perforation by the dried product. Further the package had to be one which could be opened, filled and sealed with the minimum of new machinery. Accelerated laboratory test showed that a triple-ply laminated glassine pouch or envelope with heat-sealed seams and closure provided a high level of moisture protection and could be handled easily by a very simple production installation.

The laboratory package tests showed a moisture gain of only 3 1/2% after 3 weeks of storage at 100 deg. F. and 90% relative humidity. This result was the lowest gain of any of the packages tested.

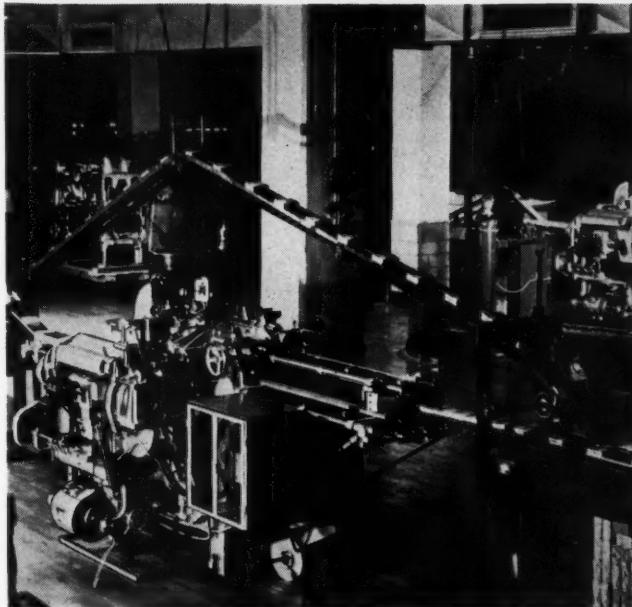
The package, as received by Cranberry Canners, consists of a two-side-sealed pouch. Their operations consist of hand filling and sealing the top closure in a hand-operated, heat-sealing unit. The use of this particular kind of package, therefore, necessitated only a minimum of mechanical equipment for commercial production.

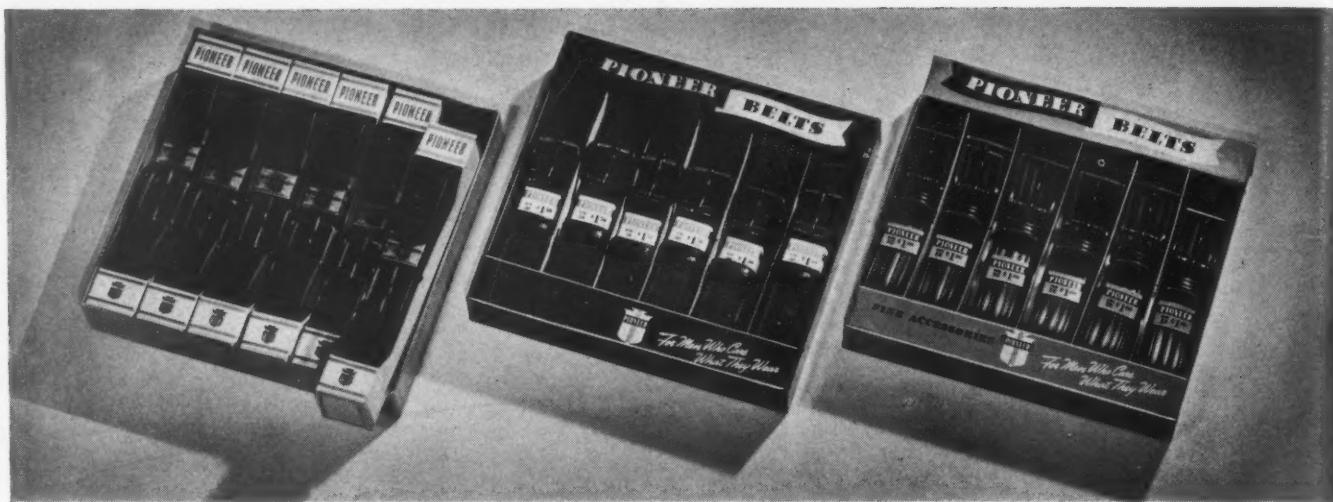
The package consists of a three-ply laminated glassine, lacquered on the inside with a strong heat-sealing coating. The surface ply of glassine is an opaque sheet and this gives a very satisfactory background for the multicolor gravure printing. This package and product represent a complete wartime conversion from the previous canned product and so far consumer acceptance indicates that both the product and the package can be expected to continue into the postwar era. It is probable that when more of the product can be made and when new equipment becomes available, this production will be done by more fully automatic means.

Credit: Laminated glassine wrapper and envelope, Shellmar Products Co., Mount Vernon, Ohio. Bread wrapping machines, Battle Creek Bread Wrapping Machine Co., Battle Creek, Mich.



5





1—At left, belts in prewar containers, each belt in separate carton. Center and right, new boxes. Individual cartons are eliminated. Belts are rolled and banded, six to a specially built counter display box.

PIONEER REDESIGNS without paperboard

For years, the individually packaged products—garters, braces, belts—of the Pioneer Suspender Co., Philadelphia, have been a standard practice for convenient and practical merchandising of such products.

Wartime limitations of transparent materials and more recently paperboard have made necessary many changes in the style and design of these packages. By careful planning, however, the company has been able to make these sacrifices and at the same time retain a great many of the established advantages of this individual packaging so universally accepted and approved by retailers.

First pinch of wartime scarcities felt by Pioneer was the restriction on transparent materials. All of the company's products before Pearl Harbor had been packaged in individual containers with either cellophane or cellulose acetate stock laminated over die-cut windows.

Elimination of the transparent windows, however, did not materially affect the style or appearance of the packages in use. They were simply produced in the same style minus the window material, although the purpose of the windows was lost. The transparent materials had been chosen to give visibility to the product and at the same time to protect the merchandise from dust, handling and soiling while on display for sale. Without the transparent window covering, visibility was left, but protection was gone.

This sacrifice was bad enough, but later curtailment in the use of cardboard was more difficult to solve in as satisfactory a manner.

Many stores had installed new fixtures providing drawers and compartments designed for storage of stock. Most stores had been supplied with counter displays for dispensing individual packages and many had been equipped with floor

cabinets designed particularly for mass display and to encourage the "self-service" idea of selling. These displays had proven their merchandising value.

Therefore, in planning the wartime packages it was desirable that the new packages retain, in so far as possible, the established advantages of the former type and that they be designed from a style and color standpoint to enhance eye-appeal.

The new packages have been on the market for several months now and the company feels proud of accomplishing these purposes within the limitations imposed by the materials available in the market.

Results can best be determined by comparison of the old packages with the new as shown in the accompanying illustrations.

Shown in Fig. 1, the package on the left holds a half-dozen belts in their old time container—each belt in a separate folding carton, formerly with cellophane window. The boxes of belts at the center and right of the same photo are the new packages. The old individual folding cartons have been completely eliminated. In their place, each belt is rolled and banded. The printed band gives necessary information about size and price and also keeps the belt securely rolled for facility in handling stock. Six of these belts of a kind are placed in a specially built box that can be placed on the counter for display. The center box is printed in brown, blue and ivory for belts selling at \$1.50 and \$2.00. The box on the right is printed in maroon and gray to designate belts selling at \$1.00 each.

These variations in the colors are also an identification aid to customer and sales person alike in these times when sales forces too are limited.

2—Old brace cartons with die-cut cellophane windows. New packages are envelopes die-cut for visibility but without cellophane. Color of envelope identifies price. 3—Old garter box replaced by new window envelope. 4—New packages are designed for arrangement in previously used floor stand.

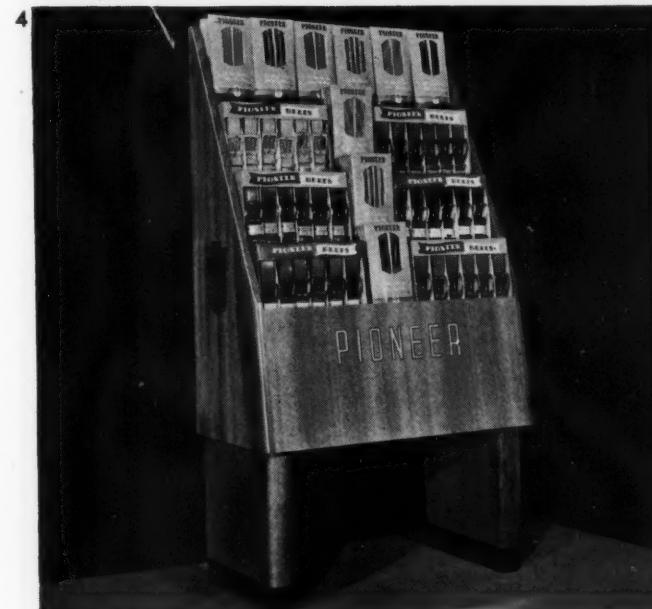
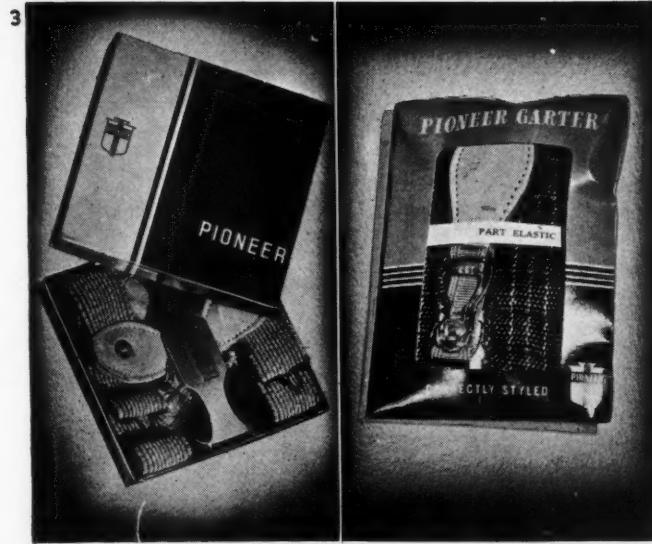
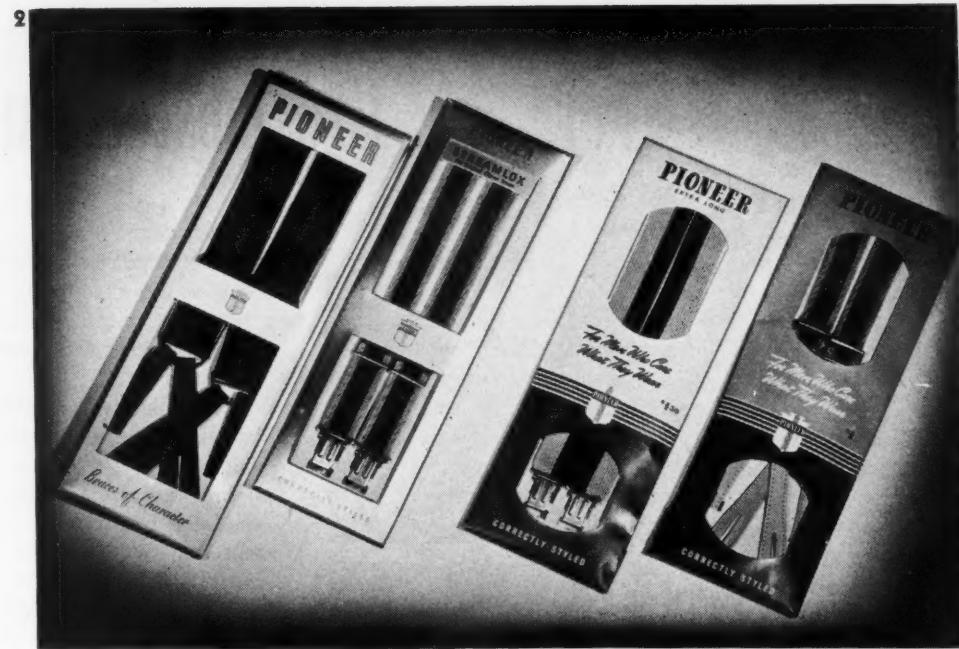


Fig. 2 shows at the left the old-style individual cardboard folders for braces and at right, the new paper bags with die-cut windows which the company is now using. Here again different colors have been used to designate two prices—brown and ivory for the \$1.50 braces and maroon and gray for the \$1.00 braces.

The same combinations of colors are carried throughout the company's line, for the sales clerks' convenience, for similarly priced products.

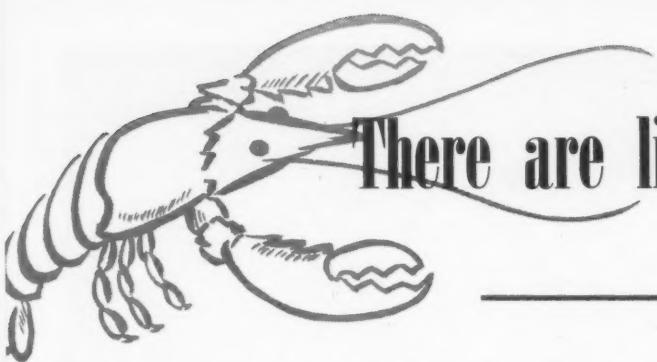
The cartons in which the envelopes or bags of braces are packed for delivery are covered with Pioneer trademarked paper. All the other cartons are printed wraps.

The new and old individual garter packages are shown in Fig. 3. Note the tremendous paper saving in the new envelope type of container over the old style set-up box. Trademark crest and color scheme have been preserved despite the complete change.

The floor stand shown in Fig. 4 shows how all the new packages can be neatly arranged for self-service in the same space that was planned for the old style packages. This planning has had the hearty approval of store men handling the merchandise.

Most accessory merchandise of this type is the kind that would be a headache to handle in bulk and Pioneer is to be commended highly on the manner in which it has solved its wartime packaging problems and for the large paper savings that have been made while retaining much of the sales appeal of the packages.

Credit: Designs by Lavevson Bureau, Philadelphia. Bags, Thomas M. Royal & Co., Philadelphia. Belt bands, Cameo Die & Label Co., New York. Cartons for braces, Albert Eichorn & Son, and George H. Snyder Co., both Philadelphia. Wraps for set-up belt display boxes, Charles H. Elliott Co., Philadelphia. Trademark paper on brace cartons, Walther & Co. Inc., Brooklyn. Maroon flint paper on lid of belt carton, Hampden Glazed Paper & Card Co., Holyoke, Mass. Ivory stock, Charles W. Williams Co., Inc., New York.



There are live lobsters in those barrels!

Lobsters are shipped in barrels by an East Coast concern which advertises itself as the "world's largest producer and distributor of lobsters." The volume hits between 7,000,000 and 8,000,000 lbs. of live lobsters a year, all carefully packed in refrigerated barrels.

The lobsters are caught in wooden traps by fishermen who make the rounds of their traps like fur trappers—only they row their way to and from the job.

The snared lobsters are picked up by special fast boats working from the central distributing point in Gloucester, and put into 228 huge holding tanks where sea water is constantly pumped in and out. An essential aerated condition must prevail in the water at all times and this 8,000,000-gals. flow of clean ocean water achieves that purpose. This tremendous amount of water actually passes through the plant daily and serves to keep some 500,000 lbs. of live lobsters in top condition.

At the central distributing plant in Gloucester, the cleansed live lobsters remain in the seawater tanks an average of three to five days prior to shipment. Orders pour in from everywhere in America. Many people who before the war could

not afford this sweet seafood delicacy are now tasting it for the first time.

Fifty pounds of live lobsters are packed in slack cooperage barrels which weigh from 100 to 110 lbs. when fully iced for shipment.

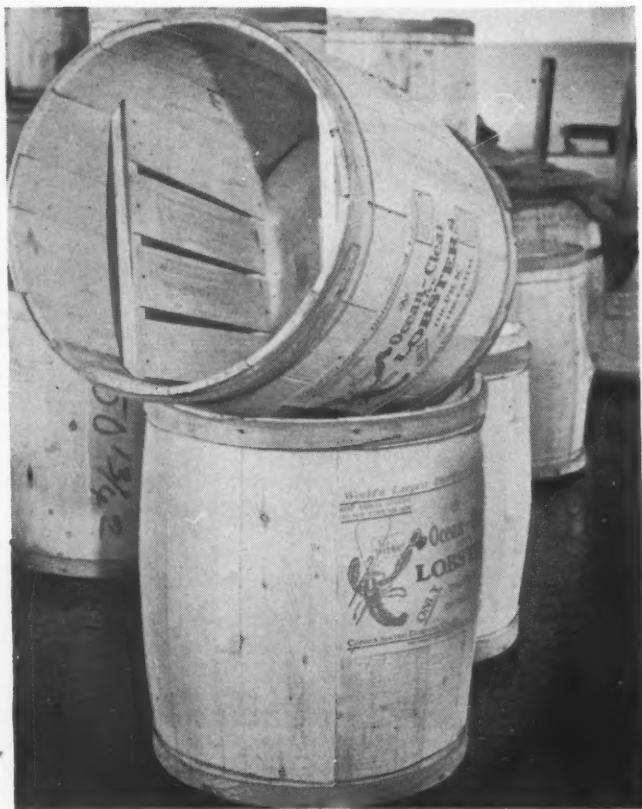
In the barrels, 16-in. deep, wooden compartments are specially constructed and these compartments house the lobsters. Wet seaweed (brown, rockweed type) is placed over the lobsters and the top of the compartment boarded over by means of a wooden hatch.

Then crushed ice is shoveled down into the barrel along the compartment sides. Solid chunks of uncrushed ice are placed between compartment top and barrel top and the whole covered over with wet burlap held in place by a single wooden hoop tightly nailed into the softwood staves.

This thoroughly iced package makes a solid, rugged container. Even during the hottest summer months such a package will stand up in transit four to five days.

To make doubly sure of this, however, barrels are re-iced in transit. This is a contractual arrangement with the transportation company. If a shipment is going west of

1—100-lb. slack barrels have inner compartments to keep lobsters from direct contact with ice. 2—Inner compartment is packed with 50 lbs. of lobsters which are then covered with layer of moist seaweed.



1



2

Chicago, it is re-iced in Chicago. Re-icing also takes place in Denver if lobsters are bound for California.

As the ice melts, it runs down over the seaweed which in turn serves to keep the lobsters wet, a necessary condition for transit life. Holes are bored in barrel bottoms to allow drainage of water en route.

This moisture maintenance is essential to lobster life in shipment for without it the shells would dry out and death would result. Once dead, lobsters deteriorate much quicker than other types of seafood. Shells must, therefore, be moist at all times. If the lobsters were able to drink the melting ice water, that too would cause rapid death. Fresh water kills lobsters.

This explains the special inner wooden compartment which segregates lobsters from direct contact with ice.

It should also be explained that shipping in salt water is out of the question. Such water would have to be aerated, circulated, kept cool (60 deg. down), or mortality would be high and fast.

Lobsters are, in fact, one of the most delicate of all nature's creatures—in spite of their hard shell and ferocious appearance. They live in the sea at a precise level and water pressure, and they cannot live long in any but their natural environment.

It is reported that some experiments recently have been made with the packing of live lobsters in special containers in water which has been "injected" with oxygen at 40 lbs. pressure. Such inner containers may be of cardboard or cellophane. A one-way valve of soft rubber permits the introduction of the oxygen through a valve, and the 40-lb. pressure within the container is said to be well maintained during shipment to distant points. This type of packing has not yet been sufficiently tested in actual use, however, to determine whether it will ever be very widely used commercially.

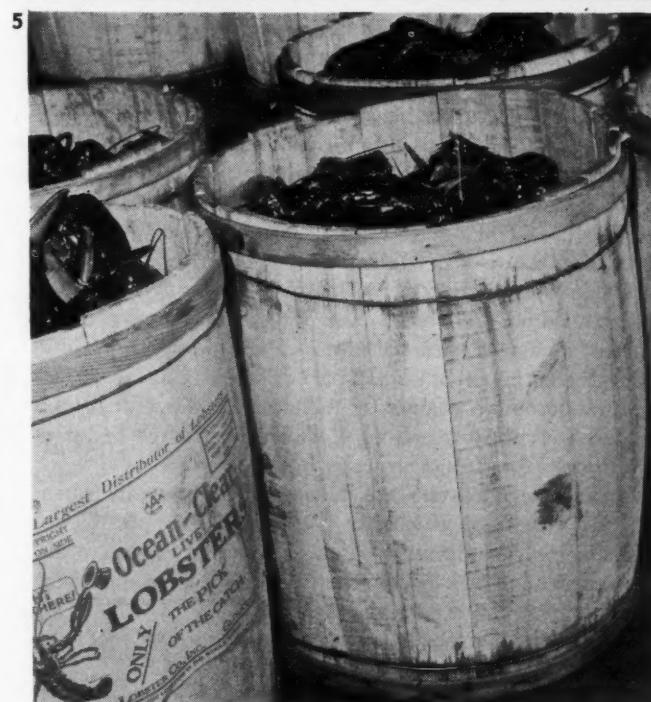
The seaweed used in the conventional pack is a type which flourishes on the rocky Maine and Massachusetts coasts. Long in use for this specific purpose, its value lies in its ability to hold moisture.

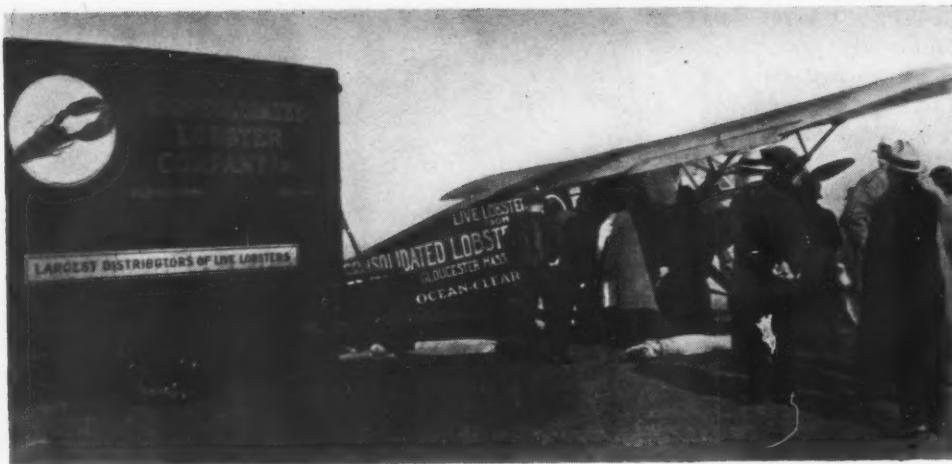
"Not only that," said I. R. Cousins, active sales head of Consolidated Lobster Co., "but coming from the vicinity of the lobster's habitat, it is a natural medium to use in shipping."

Mr. Cousins explained further that the seaweed is retained by hotel and restaurant buyers who spread the weeds over the live crustaceans in their own holding chests for preservation purposes. The long, brown weed also makes colorful window display material when lobsters are put out for public display to tempt the hungry passersby. Burlap, it is pointed out, could well serve the same purpose provided it was kept moist at all times.

For winter shipments, inner barrel compartments are lined

3—Barrel at right shows how solid chunks of ice are placed atop boarded-over inner compartment. Crushed ice has been packed solidly along sides. Finally, burlap goes over top and is held in place by hoop. **4**—Barreled lobsters ready to leave for central distributing point. Ink-pencil markings show number and quality of lobsters. Shipments are successfully made as far as Denver. **5**—Loose lobsters shown here have been trucked from nearby production points, without icing, and will go into storage tanks for packing and shipment within 4 days. Aerated seawater in holding tanks keeps them healthy.





6—Before the war, some live lobsters were shipped in company-owned planes. Commercial fliers would accept dry-pack lobsters but objected to drainage from iced packs. Postwar plans include cargo planes to accommodate drainage.

with 24-in. brown kraft paper tacked into place. This paper is purchased in 50-lb. rolls and serves to keep sudden chills from lobsters in transit.

Prior to the war, shipments were regularly made to the West Coast but due to present transportation difficulties, shipments are not now made west of Denver. Live, barreled lobsters are also shipped as far south as Miami and, in the same weather zone, to Dallas, in ordinary times.

"After the war," said Manager Cousins, "we might well make shipments into Mexico—if there is sufficient demand for them."

Packaging materials used are wood for the most part. Barrel staves are spruce, fir or hackmatack—soft woods. Two wire hoops and two elm hoops hold the barrel stays in place.

Barrel measurements are 23 in. high, built on an 18-in. head. Elm hoops are ordered in carload lots and come 88,000 hoops per car. Barrels are first weighed empty and average 19 lbs. before packing. Then, 50 lbs. of lobsters are put into the compartments, seaweed on top. Barrels are weighed again for tare weight. After icing, barrels are not re-weighed inasmuch as the company has an agreement with the express agency whereby only tare weight is charged in shipment.

Burlap is ordered in bundles 28-in. square. Five hundred pieces of burlap come lashed together in one bundle. Woven tea mats have also been used to serve the top-covering purpose but are not available in any quantity since the war. Special ink pencils are used to mark burlap tops with number of pack and quality of lobster in the barrels.

Storage and distributing plants are located in Gloucester and Boston. Pounds are established at Friendship, Vinalhaven, and Hancock in Maine.

"A pound," explained Mr. Cousins, "is simply a piece of ocean walled off. We build dams across suitable coves along the coast and stock them with fresh-caught lobsters."

This cementing off of a small part of the heaving sea makes a natural outdoor container for the lobsters. Here, the tides ebb and flow, wash over tops of dams constructed to leave from three to four feet of seawater in the pounds.

During tides, lobsters are taken out of pounds, when needed, by means of seine nets. At low tide, it is possible to open sluiceways built into pounds so that men can walk around, and hand pick lobsters, and also to wash out walled-in areas thoroughly.

One pound of live lobster is allowed to each square foot in a pound.

"The pound at South Hancock, Maine," Mr. Cousins said,

"is 365,000 feet square. This enables us to store 365,000 lbs. of lobsters in this one pound alone."

The lobster pound is the all-time answer to keeping a steady supply of this famous delicacy before a nationwide consumer public.

"We impound twice a year," Cousins stated, "for late summer use during the shedding season and again in the fall for late winter use when no fishing is being done."

Capacity of combined pounds runs from 900,000 to a million lbs. Lobsters can be kept in these pounds from three to five months. During this time they are fed salt herring which they consume bones and all. When confined to the tanks, however, lobsters are not fed since their average stay is only three to five days prior to shipment. While in these holding tanks, lobsters purge themselves of tail gut secretions which are washed away by the perpetual and powerful flow of clean seawater.

At one time, the company shipped live lobsters by plane. A fleet of company-maintained planes, purchased for this purpose, enabled the boast that lobsters caught one day could be served cooked to patrons in cities of the Mid-West the same day.

It was necessary to devise a dry pack to ship lobsters by plane prior to purchase of the company's own fleet. Regular aviation companies would not accept iced lobsters for air shipment due to the draining water.

Plane shipments are not made now, of course, but in Mr. Cousins' words:

"If, after the war, some aviation concern could construct in the fuselage of its planes an arrangement that would enable drainage, we would probably resume shipments by this method."

Lobsters would not lend themselves to much refrigeration in plane transit. Thus, stratosphere freezing would not apply as it will in the case of currently planned postwar air express of frozen fish in fillet form.

Freezing of live lobsters makes the meat "short," Mr. Cousins explained. "That is, the meat crumbles."

For the dry-pack plane shipments, moist seaweed was used in this pack; no ice. Metal containers were used. All dry-packed, live lobsters had to be shipped with temperatures carefully maintained at about 55 deg. and even then only a 24-hr. transit life could be expected.

Credit: Burlap, J. Shore Co., Chelsea, Mass. Wire hoops, Bethlehem Steel Corp. and American Steel & Wire. Coiled elm hoops, Louisiana Hoop Co., La.; H. P. Lowe Co., Ft. Wayne, Ind.; Ziegler Cooperage Co., Detroit.

BEAUTY PARLOR



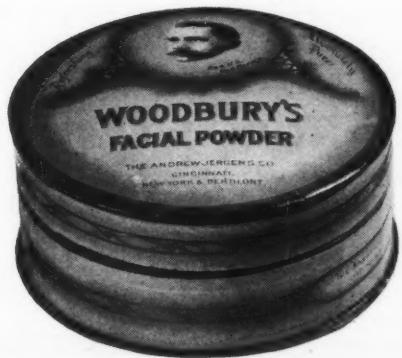
EARLY 19th CENTURY

This old sketch illustrates some of the tortures through which women put themselves in order to be beautiful. Perhaps we moderns may find much that seems familiar.

One thing that is lacking, of course, is the presence of packaged cosmetics. In those early days they were something to be used in secret and made up to prescription.

The old package shown on this page does not date back to the days of the

illustration. But it does give some idea of how far we have come in package design. We have also made many advances in production which enabled the Burt Company to turn out packages such as this in large numbers and completely automatically. Our package producing service fills the needs of some of the largest marketers of cosmetics. They use Burt round, square, oval and oblong set-up boxes because they are inexpensive, attractive, sturdy. Perhaps we may be able to serve you, postwar.



F. N. BURT COMPANY, INC.

500-540 SENECA STREET, BUFFALO, N. Y.

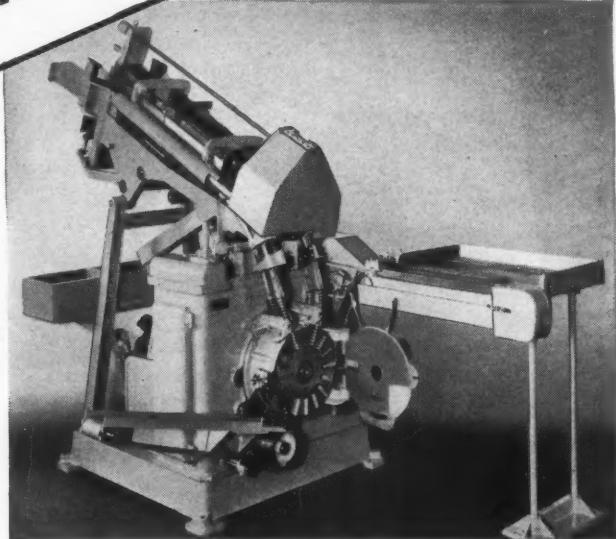
New York City - Kansas City - St. Louis
Atlanta - Chicago - Los Angeles - Boston
Cleveland - Cincinnati - Memphis - New
Orleans - Minneapolis

SAN FRANCISCO: 220 Bush Street Yukon-0367
915 Military Park Bldg. Telephone Market 3-0789

CANADIAN DIVISION:
Dominion Paper Box Company, Ltd.
468-483 King Street, West, Toronto 2, Canada

We didn't have a machine for this packaging job

*—But we designed
and built one in jig time*



**When peace comes, you'll find this sort of designing
and machine-building skill worth calling on**

As you witness the accomplishments of various companies in the war effort, you are no doubt making mental notes of those organizations that are doing the sort of things which may prove of value to you in peace-time... We believe, therefore, that this clip-loading machine will interest you as a user of packaging machinery. For it shows: (1) the ability to think fast; (2) to design simply and practically; (3) to build machines quickly and in quantity.

With just a few clips and cartridges for experimenting, we designed and built the first clip-loading machines in three months time. The machine for Springfield clips loads 150 clips per minute; the machine for the Garand, 70 clips per minute.

Batteries of these machines are now in use—and they are by no means the only armament machines we have created.

It's work of this type, as well as the building of wrapping machines for manufacturers who are supplying the armed forces, that will lead to new and better peace-time packaging. We are working on ideas right now, and will be glad to study any new developments you may have in mind.

PACKAGE MACHINERY COMPANY

Springfield 7, Mass.

New York Chicago Cleveland
Los Angeles Toronto



PACKAGE MACHINERY COMPANY

Over a Quarter Billion Packages per day are wrapped on our Machines

TECHNICAL SECTION:

TECHNICAL

EDITOR

CHARLES A. SOUTHWICK JR.

Postwar trends in paper coating

by John F. Halladay*

Recent discussions by expert paper coating technicians offer a forecast on the economic impacts of technical developments in this field. Management, keenly aware of this trend, searches for information to assist in setting the sails of business so that full earning advantage can be taken of the shifting winds produced by a changing technology. Each manager is, without doubt, most interested in the effects which will be operating on his particular product. Because of the widely diversified applications for coated paper, it is practically impossible to predict what will happen in the postwar period without confining the speculation to one particular application. There are, however, certain generally known facts which, upon examination, will offer hints as to the probable postwar developments within any field holding specific interest for the inquirer.

Not only are changes in the offing with reference to the type of raw materials used for the purpose of coating papers for printing, but it seems likely that the impacts of new equipment developments will be felt with increasing force when restrictions brought about by a war economy are lifted.

To attempt to cover all of the field of paper coating would represent an impossible task within the space limitations of this article. It seems desirable then, to limit our inquiry to the coating of papers for the printing arts. An inquiry restricted to this scope would involve papers for any printing process and would include, among other things, boxboards for cartoning, book papers, box cover papers and perhaps some types of newsprint.

Changes from coating equipment developments

A recent bibliography compiled by Dr. Clarence J. West and issued by the Institute of Paper Chemistry at Appleton, Wis., carries some interesting information with reference to the increasing interest in new processes for coating papers. A survey of the coating patents listed in Dr. West's bibliography discloses that a tremendous expansion has been given to the coating equipment field by a constantly increasing rate of inventive output over the past several years. For example, Dr. West's bibliography indicates that in the five-year period from 1924 to 1928 inclusive, about seven patents were issued by the United States Patent Office covering new art in this field. In the five-year period from 1939 to 1943 inclusive, about 42 papercoating patents were issued by the United States Patent Office in a comparable period—an increase of

500%. The following table points a trend in coating equipment development which is, to say the least, interesting:

Period	Number of United States Coating Equipment Patents Issued
1924-1928 inclusive	7
1929-1933 inclusive	20
1934-1938 inclusive	46
1939-1943 inclusive	42

It is interesting to speculate what the final five-year period (1939 to 1943) might have produced in the way of increment to the 1934 to 1938 period had American inventive talent not been diverted to more immediate pressing war needs.

Of the approximately 115 United States coating equipment patents issued over the past twenty years, many are so specific in their applications as to be of little interest to the coated paper industry in general. To attempt to cover all of the art represented by these patents would require a volume of many pages. But a few of the processes which have been developed and patented are so greatly different from the commonly known coating process that their economic and

CONVENTIONAL TYPE COATER

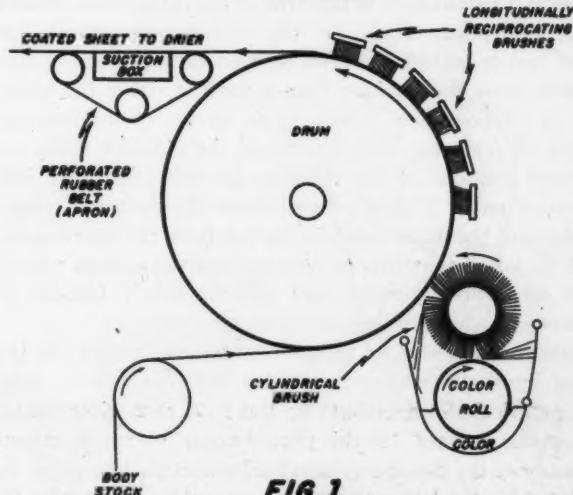


FIG. 1

* Technical Director, American Coating Mills, Elkhart, Ind.

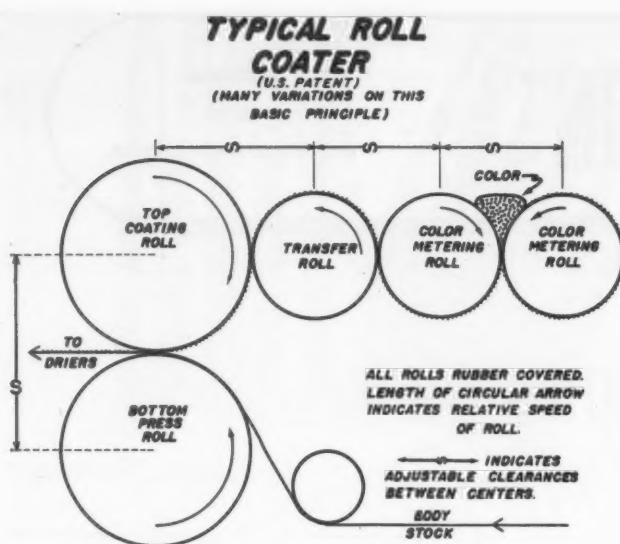


FIG. 2.

esthetic prognostications are of considerable importance. A comparison of the differences existing between the old and new coating processes will give a rather clear picture of what may be in the offing in the coated paper field in so far as equipment is concerned.

Changes resulting from printing methods

Before looking into these differences, it is helpful to remember that almost all paper, whether coated or not, is printed or decorated in some form before ultimate consumption. Of this amount, probably 90% will be decorated by some of the presently known printing processes of which the most commonly used is the letter-press type of printing, such as is done on the ordinary cylinder press from copper electrotype, the printing portions of which are raised above the surrounding metal. Within the last few years, however, a great increase has been seen in the application of the planographic printing processes, the most common of which is the standard type of offset lithographic press in which the printing part of the plate is not geometrically different from the non-printing part of the plate, but which has been made receptive to ink by chemical means. In addition to this, great increases have been apparent in the decoration of paper by the intaglio process and particularly is this true of the rotogravure branch of the newspaper field. In the rotogravure process, an etched copper plate is covered with an excess of ink of considerably more fluid nature than is used in either the letter-press or planographic fields. This excess is immediately scraped off from the higher parts of the cylinder while the depressed portions of the cylinder are left filled with ink. A sheet of paper is then pressed upon the doctored copper cylinder and the paper removes the ink from the depressions. It will be noted that this process is almost the exact reverse of the letter-press process and has practically nothing in common with the planographic process.

It seems reasonable to suppose that developments in the field of synthetic rubbers, or other flexible plastics, may bring practical developments in the field of flexible letter-press printing plates. If this should occur, we might expect that many of the commonly accepted essentials in a paper to be printed by the letter-press process would no longer be essential. More specifically, because of the inflexible nature of

the copper electrotype used on the bed of letter-press presses, great stress has been placed upon securing a smooth, yielding surface in the paper to be decorated. These properties have been essential to secure as intimate contact between the electrotype and the sheet of paper as possible. This permits reduction of the ink film thickness to a minimum. When this is achieved, cleaner, more faithful impressions of the subject invariably ensue. Moreover, since the film of ink is thinner with smooth paper, a relatively more rapid absorption of the varnish vehicle into the paper takes place, thus greatly facilitating the speed of production and the quality of the finished results.

Numerous experiments in many press rooms over the country have shown that a flexible printing surface, such as a rubber or plastic plate, when used in the letter-press process will greatly minimize the need for a smooth-surfaced paper and that under these experimental conditions, results approximating offset lithography on even rough surface papers can be achieved with letter-press equipment. Till now, however, most of these experiments have been interesting only from the experimental viewpoint since such rubber plates in the past have lacked durability. One might expect, however, that the increase in knowledge of synthetic elastomers might very readily alter the formerly accepted conceptions of paper requirements in the letter-press field.

Changes resulting from new raw materials

The impacts of war have produced many shortages in the raw materials hitherto used for formulating coatings. While this statement is equally true for adhesives or pigments, the most important economic potentialities reside in the adhesive field rather than in pigments. Operating methods have been in the past (and are apt to be in the future) very flexible in utilizing a wide variety of pigments, such as kaolin, titanium dioxide, barium sulphate, zinc oxide, lithopones, etc. This versatility in the use of pigments was not, prior to war, evident in adhesive use and this inertia in the adhesive field provides a soil which, fertilized by wartime shortages, will very likely produce sweeping changes. Prior to 1939, it was generally conceded that casein was, without doubt, the best material for an adhesive in coating mixes. Because of shortages in the casein supply, many other alternative adhesives have been tried and a number found successful.

With these possible changes in equipment, printing methods and coating formulation as a background, it is interesting to examine the reasons behind the efforts to improve the machines used to produce coated papers. Primarily, the requirements for a sheet of paper which will print well by the letter-press process are, at least in part, as follows: First, freedom from dust or loose material. Second, freedom from cockle or curl. Third, adequate strength to insure proper movement through the press. Fourth, surface smoothness and compressibility sufficient to permit intimate contact with the unyielding electrotype. Fifth, adequate oil absorption for the job at hand. Sixth, brightness and permanency of color. The requirements for offset lithographic printing would be almost identical except for the fact that in this process, emphasis on smoothness and oil absorption is not so urgent due to the use of flexible rubber blankets for printing on the sheets and the thinner ink films that result. In the gravure field, smoothness and softness are essential, but, because of the volatile vehicles in those inks used in gravure printing, the oil absorption of the paper assumes lesser importance.

Superimposed on all of these requirements is another

which is commonly required in great measure by all three processes. Uniformity in all these important characteristics is a prerequisite and it is in this respect that the coated sheet of paper or paperboard shows marked superiority. In a well-formed sheet of paper or paperboard, the fibrous structure of the sheet can be adjusted in the beater room to produce a wide range of strength characteristics. For example, it can be made stiff and hard or leathery and tough. Unfortunately, these divergent characteristics involve different fibre lengths within the structure of the sheet and these, in turn, involve differing degrees of porosity and smoothness. The desire to reconcile these incompatibilities and to improve the brightness and permanency of the color of the sheet of paper must have been responsible for the early developments of coaters for paper.

Conventional type coater

While there are many different variations on the basic method, Fig. 1 shows a typical conventional type coater, which is the one most widely used in the coated paper field over the past 20 or 30 years. Examination of Fig. 1 will show that the original inventor must have been endeavoring to develop a machine which would do the same work as had originally been done experimentally by hand with an ordinary paint brush. The illustration is self-explanatory. Colors used consisted principally of kaolin in a suspension with casein or animal glue, which was maintained in a highly fluid condition in the color pan around the color roll. It was transferred to the cylindrical brush by the rotation of the color roll and was applied to the sheet by the cylindrical brush. The reciprocating flat brushes then smoothed the coating as the sheet traveled around the drum and proceeded on to the drier. The cycles on the brushes were so adjusted that they were out of phase with one another and had varying frequencies and amplitudes—the former increasing and the latter decreasing as the final stages of the finishing operation were approached. The suction box and rubber apron merely served to place a tension on the web of paper being coated so that the friction of the driven drum would pull it through the apparatus at a reasonably constant speed.

As the technology developed, deeper knowledge of color compounding methods was gained and pigments other than clay were introduced into the formulas. Among these were satin white, blanc fixe and either precipitated or other types of calcium carbonate. These variations increased the flexibility of manipulation of the coating properties and by various refinements which were introduced from time to time, the sheets thus coated came to be recognized as those most suitable for high-grade letter-press printing. Great flexibility was achieved from this apparatus as regards the rate of oil absorption that could be built into the printing surface and this factor is probably at its best controllable level in coated sheets of paper produced by this process.

The color formulation, while subject to wide variations, generally involved approximately 30% of solid non-evaporable materials and approximately 70% of water so that for each pound of dry coating finally left upon the sheet surface, $2\frac{1}{3}$ lb. of water had to be removed from the sheet by evaporation before the final calendering action could take place. Because of this high water: solids ratio, the drying problem became a difficult one. Most of the paper so coated would carry from two pounds per 1,000 sq. ft. up to nine pounds per 1,000 sq. ft. of solid material, which meant that for each 1,000 sq. ft. of paper coated, the driers were called upon to remove from $4\frac{1}{2}$ to 21 lbs. of water by evaporation.

Because of this, the drier installations were expensive and cumbersome, and the cost of the product was resultantly high. However, it is undeniable that sheets produced under these conditions represented then, and probably will represent in the future, the finest all-around quality obtainable in the entire paper industry. For high-grade reproduction, they could not then, and probably cannot now, be equaled. Despite the high quality which is produced by the conventional coating method, the high costs involved in such a process have stimulated a constant search for a coating process in which these undesirable features were eliminated or minimized, and this search led to the tremendous increase in coating patents issued in the United States over the past twenty years.

As mentioned in a foregoing paragraph, these have totaled around 115 separate patents issued in that period.

Roll coaters

The principal objections to the conventional type coater were not only involved with the cumbersome method of drying, but the inherent sequence of processes was likewise costly and clumsy. The body stock which was produced upon the paper machine usually was delivered from this machine to a reel, and a roll on a proper core was wound from this reeled paper. This roll was then usually stored within the plant until it was needed for the coating operation. At this point, it was removed from the roll storage, placed on a roll stand, unwound through a coater, passed through a festoon dry room and rerolled at the end of this section. Ultimately, this roll would then be placed on another roll stand, unwound through a super-calendering operation and rerolled. This roll, in turn, was then placed on a roll stand and the paper run through a cutoff knife (commonly called a sheeter) at which point it was sorted and packed for final shipment.

The development of roll coaters, a type of which is shown in Fig. 2, and which is now in commercial use in the book paper and boxboard industries, was inspired by the desire to eliminate these successive handlings of the paper in an effort to reduce costs. Undoubtedly, the inventor theorized that if the coating operation could be combined with the paper machine operation as an integral part of it, all or most of the inefficiencies of the old-type process could be avoided or mini-

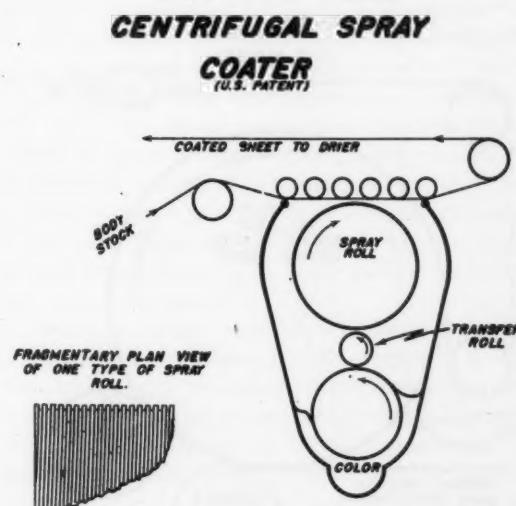


FIG. 3.

mized. Undoubtedly, he realized that the amount of water to be evaporated in the conventional process was one of the chief stumbling blocks and the effort to avoid this relatively large necessary evaporation must have led him inevitably to the roll coating principle.

Fig. 2 probably represents an over-simplification of most of the installations which are now functioning in the United States. Unlike the conventional type of coater, the roll coater is capable of handling color formulations with percentages of solids up to 60%. This means that instead of the $2\frac{1}{3}$ lbs. of water which had to be evaporated by the conventional process, the roll coater could operate with an evaporation of only $\frac{2}{3}$ lb. per pound of coating solids applied. Here was a tremendous change in the difficulty involved with drying—a change under which less than 30% of the drier capacity would be needed for an equivalent amount of production. Moreover, since such small amounts of water had to be evaporated, the coating could be placed in a non-sticky condition much more quickly than that applied at lower solids per cent.

This immediately opened up the possibility of drying the roll coated sheet on a conventional steam heated paper machine drier drum. This is probably the most efficient method of drying paper generally known in the industry. The roll coater, then, immediately made possible the elimination of the handling operations associated with the old-type of coater and made it possible to produce a sheet of coated paper in rolls or sheets at the end of the paper machine proper. The cost advantages, therefore, were considerable and it would have appeared that the roll coater, without further ado, might have taken much of the market formerly enjoyed by the conventional type coater.

There were certain disadvantages in the roll coater, however, which retarded this tendency and some of these still operate. Whenever a fluid material—whether low in viscosity or high in viscosity—is applied to a sheet of paper by a rolling cylindrical surface, striations are produced in the deposited coating. These result from the surface tension of the liquid, its viscosity, the rate of liquid shear at the nip of the rolls, and the rate of separation between the coated sheet and the depositing roll. For any given coating formulation,

the size of these striations will increase as the volume of material applied increases. As we decrease the amount of material applied, the number of these striations per inch increase until when approximately 75 to 80 ridges per inch is reached, the human eye is unable to perceive irregularities caused by them, although these irregularities still exist. Much of the fine halftone printing done in the United States today involves the use of halftones made with screens having over 100 lines per inch, and such halftones do not produce the best reproductions possible on a striated coating.

From a practical standpoint, however, much of the medium quality publication work in the United States today is produced upon machine coated papers of this type and, as the technique of the process is better understood, improvements in quality will doubtless result. There are some who predict that newsprint produced by processes of this sort may become common after the war's end.

Centrifugal spray coater

The same motives which prompted the development of the roll coaters probably gave incentive to the development of the centrifugal spray coater which is an interesting new development of the past decade. Reference to Fig. 3 will show that there is no contact between the spray roll and the sheet as it is processed. This principle obviates the difficulties involved with striations found in the roll coaters.

This general principle is embodied in contemporary commercial coating operations and produces a sheet in which no striations are detectable. Because it successfully avoids this difficulty, it is reasonable to suppose that the spray coater will possess much greater flexibility as to the amount of coat weight which can be carried. It is also claimed that this type of coater will handle a wide variety of coating formulations at high or low solids. Sheets coated by this process possess smoothness and considerable evenness in the application. The centrifugal spray coater should make available many fine quality box covering papers which, as is well known, are usually C1S sheets.

Up to now, it is believed that no commercial installations are operating to coat both sides of a sheet of paper with this process and, for the moment, at least, it would not appear that this coater would bring about much change in the coated book paper market. However, if this process should subsequently be successfully applied to C2S book, it might readily produce papers of good printing qualities at low cost. The equipment is precision-built and is said to be costly.

Cast coating process

While not one of the most recent United States patents, the cast coating process, shown in Fig. 4, is of considerable interest. In this machine, the freshly coated stock is pressed firmly against the face of a highly polished chromium plated drier without intermediate smoothing processes. This pressure causes the surface of the coating to stick to the highly polished chromium surface until dry, and at this point the sheet is removed from the drier—the drying process having terminated its adhesion to the chromium plated surface. Because of these features, the paper resulting has a finish which is independent of practically all variables except the nature of the surface on the chromium plated drier, and thus, theoretically at least, a constant finish could be produced on all types of body stock and the method of applying the original wet coating would be relatively unimportant. Papers made by this process have beautiful, smooth, glossy surfaces and

CAST COATING PROCESS

(U.S. PATENT)

DRIED COATED
PAPER TO REEL OR
SHEETER

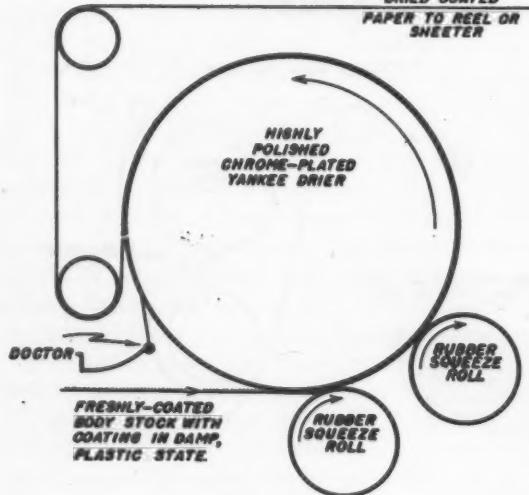


FIG. 4.

are excellent for the printing of gloss inks as well as for many printing operations involving halftone illustrations with extremely fine screens.

It is not known whether this process has been applied to C2S, but this is believed not to be the case.

The possibilities residing in the cast coating process are difficult to appraise. Certainly, it produces beautifully smooth sheets of coated paper which would be of great interest to anyone needing such a high level of smoothness. The extent to which this process will be commercially applied in the future will largely depend on whether the process can be adapted to speedy low-cost production of sheets not possessing this sometimes undesirable excessive smoothness.

Intaglio—offset coating method

In Fig. 5 is shown a new type of coater now in operation which is essentially an intaglio printing process transferring the color onto a rubber roll which, in turn, presses it onto the sheet to be coated. The amount of color which is applied to the sheet by this method is almost entirely the result of the etching in the intaglio color roll and, for this reason, one might expect that such a process applied to a machine coating operation would produce extremely uniform coat weights which, in turn, would result in consistent drier performance on the paper machine. The question of striations must be considered in this case as in the case of the roll coaters. In either the intaglio offset, or roll coater process, the formation of these ridges tends to limit flexibility as to the coat weight which can be carried and these limitations must be obviated if either process is to be of great commercial importance in the high-grade printing fields, particularly in process reproduction and in successful printing of gloss inks.

With these facts as a background, it is not unreasonable to suppose that increasing use will be made of machine-coated papers in the publication and lower-priced book paper fields. On the other hand, these processes, in their present form, are not likely to constitute a great threat to papers or boxboards coated by variations and improvements on the old conventional type operation. Improvements in this field are also possible and it seems likely that the manufacturers in this type of coating will be able to raise the present quality of high-grade coated paper considerably above the top levels expected in the past.

Raw materials

Casein.—Most of the production of casein used for paper coating in America has been in districts where the facilities for making evaporated milk were either not available or not justified by the volume of material to be handled. The investment in a milk evaporating plant is heavy and can only be justified where a sufficient volume of milk production exists. Before the war, those milk producing areas where production was not up to the level justifying a milk evaporating plant were apt to rely for their market outlet on a casein processing plant. Recent developments in the field of drying milk now make it possible to set up a plant for the production of dried whole milk at a cost not greatly exceeding that of installing a casein plant and considerably less than that required for a milk evaporating operation. Recent methods of packing such dry milk insure its arrival in good condition even at distant points.

Methods for reconstituting this dried whole milk into a palatable, nutritious food are now available. Many of the ships of the United States Navy are equipped with suitable

INTAGLIO-OFFSET COATING PROCESS (U.S. PATENT)

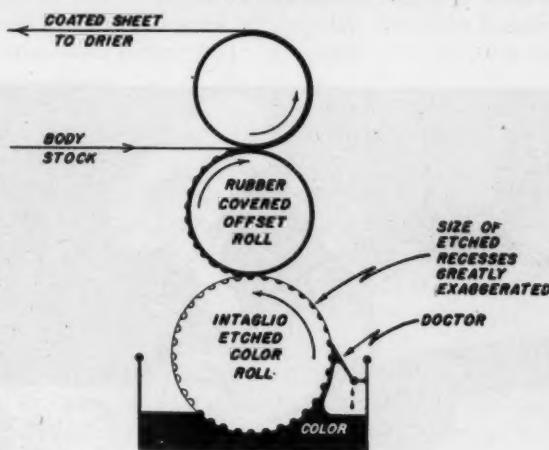


FIG. 5.

dispersing equipment which can be used to produce whole milk, cream or ice-cream from dried whole milk with the assistance of cold-storage butter. One might surmise, therefore, that the production of many dairy districts might be diverted from production of casein for industrial adhesives to the production of food via the dried whole milk route. If this occurs, casein may go on to a permanently higher relative price level than has prevailed in the past. This opens a vista for many alternative materials, and the wartime shortages have greatly stimulated the technology in handling these substitutes.

Soybean Protein.—One of the alternative adhesive materials for casein is the protein extracted from the soybean. In the form commonly known as alpha protein, it can usually be substituted pound for pound for casein in a coating formula and the results are quite satisfactory. The long acquired habits in handling casein in the coating process seem to apply equally well in the application of coatings using soybean protein as an adhesive. While the production of casein in the past has been characterized by many variations due to the conditions surrounding the production of the whole milk and the casein, the method for extracting protein from soybeans is essentially a large-scale heavy-investment industry, economically susceptible to the application of extremely competent technical control. Great strides have been made in improving the uniformity and suitability of soybean proteins over the past few years in spite of the equipment restrictions imposed by war. It seems reasonable to suppose that soybean protein may assume increasingly greater importance in the coated paper industry.

Corn Protein.—A more recent development than soybean protein is involved with the extraction of proteins from corn. It is almost impossible to foresee what future exists for corn protein as a coated paper adhesive because the development is a more recent one. However, it seems reasonable to suppose that as the technology is improved, some of the remarks applying to soybean protein might equally well apply to corn protein.

Wheat Protein.—Even newer are recent developments for the extraction of protein from wheat and the remarks applied to corn protein might equally (Continued on page 140)

NORESEAL—a new cork substitute

by S. I. Aronovsky, W. F. Talburt and E. C. Lathrop*



1—*Laboratory preparation of Noreseal sheets. Mixture is heated, beaten to incorporate air, and a setting agent added. It is then formed in sheets or individual caps.*

Natural cork, practically all imported from Spain, Portugal, France and North Africa, was placed under strict Governmental control in June 1941, at which time about two years' supply of this commodity was on hand in this country. After the United States became involved in the war the increased production tempo of military and Lend-Lease materials greatly aggravated the cork-supply situation and resulted in strong curtailment in the use of cork for the manufacture of civilian goods.

The bottling industries, including producers of soft drinks, beer, fruit juices and extracts, were quite concerned over the approaching shortage of composition cork for liners in crown caps. The cork for this use normally amounts to more than 30,000 tons annually. Representatives of these industries appealed to the Department of Agriculture for assistance and research on this project was begun by the Agricultural Residues Division of the Northern Regional Research Laboratory early in 1942.

Public announcement of the development of Noreseal has been withheld until practical plant tests covering all angles of use in the commercial bottling industry could be made. Tests on more than 7,000 bottles have been run in 10 commercial plants, including storage tests for periods ranging up to six months. The product is so promising that a large-scale pilot plant is now under construction by an association representing a branch of the bottling industry to develop commercial manufacturing procedures and costs.

The new product has been given the name "Noreseal," made by combining parts of "NOrthern" and "REgional" with the word "SEAL." It may be formed either as rods or

sheet material, or poured while in the liquid state and allowed to set in the metal caps used in bottling. It can be stamped or sliced into discs of suitable size.

Preparation of Noreseal

The compressibility, impermeability to gases, resilience and resistance to fatigue of natural cork are due to its inherent physical structure, consisting of an essentially uniform aggregation of minute hollow cells, each having relatively thick, elastic walls. Research was started on the basis that a successful substitute must have a physical structure similar to that of cork. Pith particles alone, often suggested for this purpose, are not suitable because the air cells are much larger than those in cork and their walls are much thinner. By cutting pith into fine particles or using fine fibres carrying air and incorporating these with additional air into a liquid composition that sets and hardens to an elastic body, a material has been produced that closely resembles cork in physical structure. Farm products containing pith particles suitable for this purpose include cornstalks, peanut shells and sugar-cane bagasse. Cellulose fibres from annual plants or wood can be used to modify the properties of the

Modern Packaging presents herewith another packaging development by the Department of Agriculture's Northern Regional Research Laboratory. Noreseal, a promising synthetic cork, is not to be confused either with Norelac, a synthetic lacquer (Modern Packaging, May, 1944, p. 113), or Norepol, the synthetic rubber. This is the first complete technical discussion of Noreseal.

* The authors participated in the development of Noreseal at the Northern Regional Research Laboratory, Peoria, Ill. This is one of four regional laboratories operated by the Bureau of Agricultural and Industrial Chemistry, Agricultural Research Administration, U. S. Department of Agriculture. Dr. Lathrop is chief of the laboratory's Agricultural Residues Division; Dr. Aronovsky is head of the Pulp and Paper Section, Agricultural Residues Division, and Mr. Talburt is now stationed at the Western Regional Research Laboratory, Albany, Calif.

composition. Animal or vegetable glue, glucose, glycerine, sorbitol, invert sugar, bland apple syrup, all of agricultural and domestic origin, can be mixed with the cellulosic material to bind the particles together and impart the required properties of resiliency and compressibility.

While the development of Noreseal to date has been directed entirely toward use in closures for beverages and foods, some preliminary work indicates the possibility of much wider use in the packaging field. By replacing the water-soluble materials mentioned with vinyl resin, Norepol, or other suitable elastomers and plasticizers, materials of great potential utility can be produced. However, due to the war demands, Noreseal products made from such critical materials must await postwar development. The water-soluble materials in the resilient lining of crown caps are prevented from coming in contact with the liquid contents of bottles by attaching a waterproof film or metal foil, called a spot, to the side next to the liquid.

Noreseal for the bottling industry

A representative formula for the preparation of Noreseal has the following ingredients and proportions:

Function	Substance	Parts
Elastomer material	Glue or gelatin	100
Plasticizer	Glycerine	75
	Glucose	75
Filler	Ground peanut hulls	100
Liquid medium	Water	350
Foaming agent	Saponin or sulfonated hydrocarbon	1-2
Setting agent	Formaldehyde or a material that liberates formaldehyde	2

With the exception of the setting agent, the order of adding these ingredients is not critical. After the mixture is heated to about 60 deg. C., it is stirred at high speed or "whipped" in the mixer illustrated in Fig. 1 until a sufficient amount of air has been incorporated, keeping the temperature fairly constant. The setting agent is then stirred into the mixture and the viscous fluid is ready to be formed into sheets or poured into individual crown caps (Fig. 3).

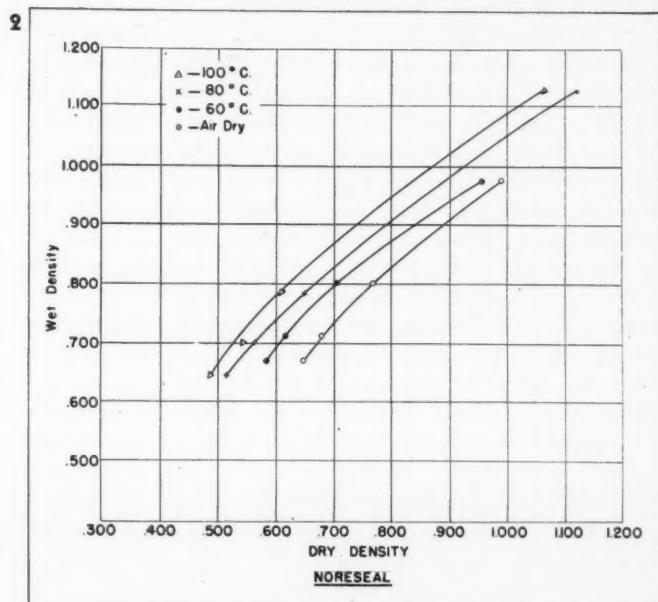
The density of the fluid mixture, just prior to addition of the setting agent and pouring, has been found to be the principal controlling factor for governing the properties of the final product. Small variations in the proportions of the various ingredients have but little effect, since they may be

compensated for by the amount of air whipped into the mixture. The relationship of the density of the fluid material to that of the final product, dried at different temperatures, is shown in Fig. 2. After drying, the samples were conditioned at 70 deg. F. and 50% relative humidity before their densities were determined. A density of 0.5 to 0.7 is usually most desirable.

Sheet Noreseal

Noreseal can be prepared readily in sheet form by coating paper with the warm mixture, using a doctor blade to obtain a uniform dry-sheet thickness of 0.070 in. to 0.090 in. After a brief period the sheet loses its tack and is sufficiently set to be handled at any angle. It is dried in circulating hot air, humidified in air of about 50% relative humidity at 70 deg. F., and die-punched into cap liners, 1.050 in. in diameter. The liners are inserted and cemented, paper side down, into the crown caps and covered with standard-size spots of aluminum foil, vinyl-coated paper or other waterproof material. The scrap from die-punching can be re-used by grinding wet and adding to the next batch.

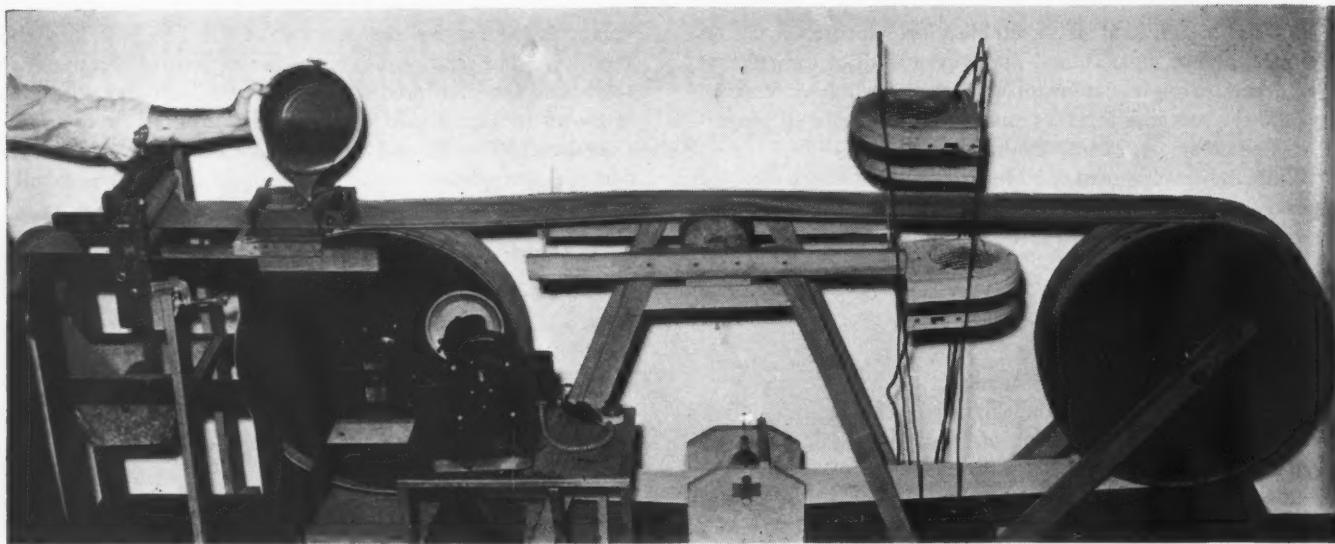
Fig. 4 illustrates a small pilot-plant machine which was built to demonstrate the manufacturing principles just described. Since the material can be made in sheet form on



2—Showing relationship of density of fluid Noreseal to that of final dried product.

3—Noreseal liner materials: lower left, punched sheet stock; lower center, punched liners in and out of crowns; lower right, roll of sheet liner; upper left, device for centering "spot"; upper center, poured liners with and without spot; upper right, rod stock, liners.





4—Small pilot-scale machine set up at Peoria laboratory demonstrates the continuous production of sheet Noreseal. A large pilot plant now under construction by bottling interests uses same principles.

machines built with non-critical materials, the large pilot plant mentioned previously is designed on this basis.

Noreseal has a pleasing tan color, not unlike that of cork, and contains a multitude of uniformly distributed minute air cells. Two of its physical properties, namely, density and compressibility, were found to be correlated with performance. This correlation is shown in Fig. 5. In bottling tests the compositions within the shaded area, requiring a pressure of 250 to 1,500 lbs./sq. in. to obtain 50% compression, were all equal to cork liners in performance. These same compositions had a density of 0.57 to 0.68 as compared with water. Compositions outside of this range were unsatisfactory. This finding led directly to the development of manufacturing specifications and larger-scale tests. It will be noted that compressibility decreased with increasing density of Noreseal. These data tend to confirm the similarity of Noreseal to cork in physical structure. Shearing tests were made on Noreseal in sheet form by placing the sample between a steel replica of a standard bottle top and a smooth steel plate, and applying a gradually increasing pressure with the testing machine. Shearing occurred at loads between 1,800 to 2,600 lbs., which values are far above any pressure encountered in commercial bottle-capping machines. No shearing of Noreseal liners occurred in any commercial bottling tests.

While Noreseal is not dissolved by water, it takes up water and swells on long contact, so that the use of a spot on the Noreseal liner is mandatory for the bottling of aqueous products. No spot is required for bottling oil or other non-aqueous liquids. The moisture content of the crown liners must be in equilibrium with that of air at 40 to 70% relative humidity just prior to use on the bottling line—an easy matter to arrange by storage in the bottling house.

Poured Noreseal liners

With the development of Noreseal, a new method of forming crown seals becomes possible. The warm fluid composition can be dispensed directly into the crown cap, spotted and dried. This method eliminates the steps of rod or sheet formation, slicing or die-punching, and insertion and cementing of the liners into the caps. Waste of material is also eliminated. This method, it is believed, will hold great

commercial promise after the war when dispensing machinery again can be built. A sufficiently large number of poured Noreseal liners were included in the large-scale bottling tests to demonstrate their superior properties.

Rod Noreseal

Rods can be formed from Noreseal by grinding the dried composition and molding the granulated material in the commercial machinery now used for making composition-cork

TABLE I—PRESSURE TESTS ON BEER SEALED WITH NORESEAL AND SUBJECTED TO VARIOUS TREATMENTS¹
(Liner density 0.60–0.68, thickness 0.080–0.090 in.)

Liner material	Treatment given	Number sealed bottles	Pressure in volumes of CO_2 per volume of liquid		
			High	Low	Average
Noreseal	None (one day after bottling)	31	2.80	2.65	2.69
Cork		4	2.71	2.67	2.69
Noreseal	Icing ²	10	2.77	2.69	2.73
Cork		12	2.85	2.70	2.78
Noreseal	Immersion ³	12	2.84	2.65	2.75
Cork		12	2.79	2.66	2.74
Noreseal	Dropping ⁴	24	2.80	2.56	2.71
Cork		18	2.81	2.65	2.74
Noreseal	Rotation ⁵	5	2.77	2.69	2.72
Cork		6	2.79	2.66	2.72
Noreseal	Dry storage ⁶	16	2.78	2.65	2.72
Cork		8	2.83	2.58	2.73
Noreseal	Hot storage ⁷	26	2.89	2.56	2.75
Cork		17	2.93	2.56	2.72
Noreseal	Normal storage ⁸	22	2.75	2.62	2.70
Cork		10	2.78	2.65	2.71

¹ Before applying any other treatment, bottles were carried in a delivery truck for one week.

² After trucking, bottles placed in ice for 5 days; ice allowed to melt over week end; ice treatment repeated for a second week.

³ After trucking, bottles laid on their side and completely immersed in water at room temperature for two weeks.

⁴ After trucking, full case of bottles dropped on case containing test bottles from height of 6 inches, every day for 12 days.

⁵ After trucking, bottles rotated end over end on wheel turning 0.5 r.p.m. for two weeks at 100° F.

⁶ After trucking, bottles stored at 70°–80° F. and approximately 5 per cent relative humidity, for one to three weeks.

⁷ After trucking, bottles stored in room maintained at 100°–110° F. for 10 to 21 days.

⁸ After trucking, bottles stored under normal room conditions for 30 to 90 days.

liners. This method is somewhat expensive. A method for preparing rods directly from the warm fluid mixture is now under study.

Resistance to mold growth

Noreseal is apparently more resistant than composition cork to attack by mold organisms. After heavy dusting with spores of *Aspergillus niger* in an atmosphere saturated with water vapor at room temperature, growth of the organism was noted on composition cork at the end of 7 days. Under the same conditions Noreseal resisted the attack for 15 days.

Commercial bottling tests

Using the formulation which had shown the greatest promise in preliminary tests, a number of compositions were prepared which varied with respect to density, resiliency and thickness. These compositions, when used in the practical bottling tests, served to establish manufacturing specifications. In these practical tests it was also determined that the standard-size spot, in comparison with a larger spot, was preferable. In addition to liners prepared from sheet Noreseal, a sufficiently large lot of poured and spotted crown seals was prepared as described above.

More than 7,000 bottles of liquid beverages and foods have been sealed with Noreseal in the operating bottling lines of carbonated beverage and food plants and of breweries. The Noreseal-lined crowns were dumped into the bottling machine hoppers without interrupting the normal continuous operation of these machines. The sealed bottles were removed after they had received the normal treatments in the various plants, such as pasteurization, rotation, (Continued on page 136)

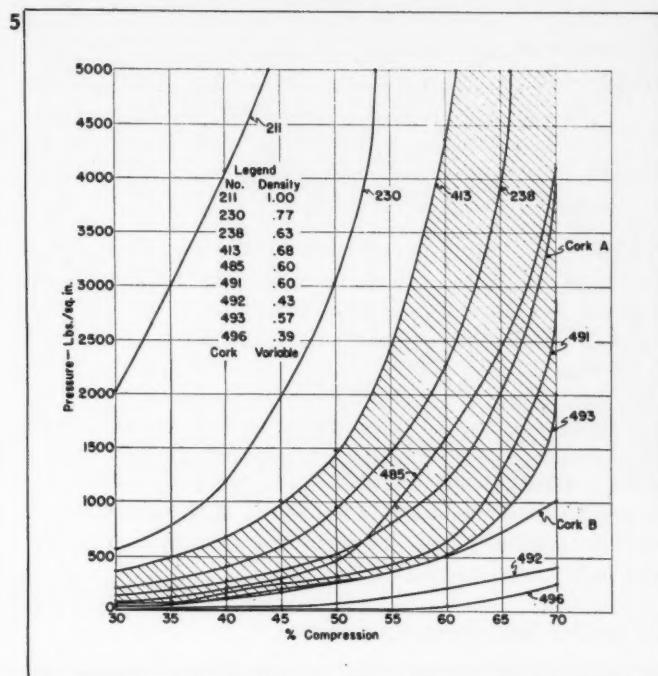
5—Showing correlation of density and compressibility of cork with same properties in Noreseal. 6—Cross-sections of crown-sealed bottle tops, showing: left, Noreseal sheet liner; center, poured Noreseal liner; right, composition cork liner. Note flow of the Noreseal liner over bottle lip, particularly in the case of the poured liner.

TABLE II—PRESSURE TESTS ON BEER SEALED WITH POURED NORESEAL LINERS
(Density 0.52–0.90, thickness 0.065–0.090 in.)

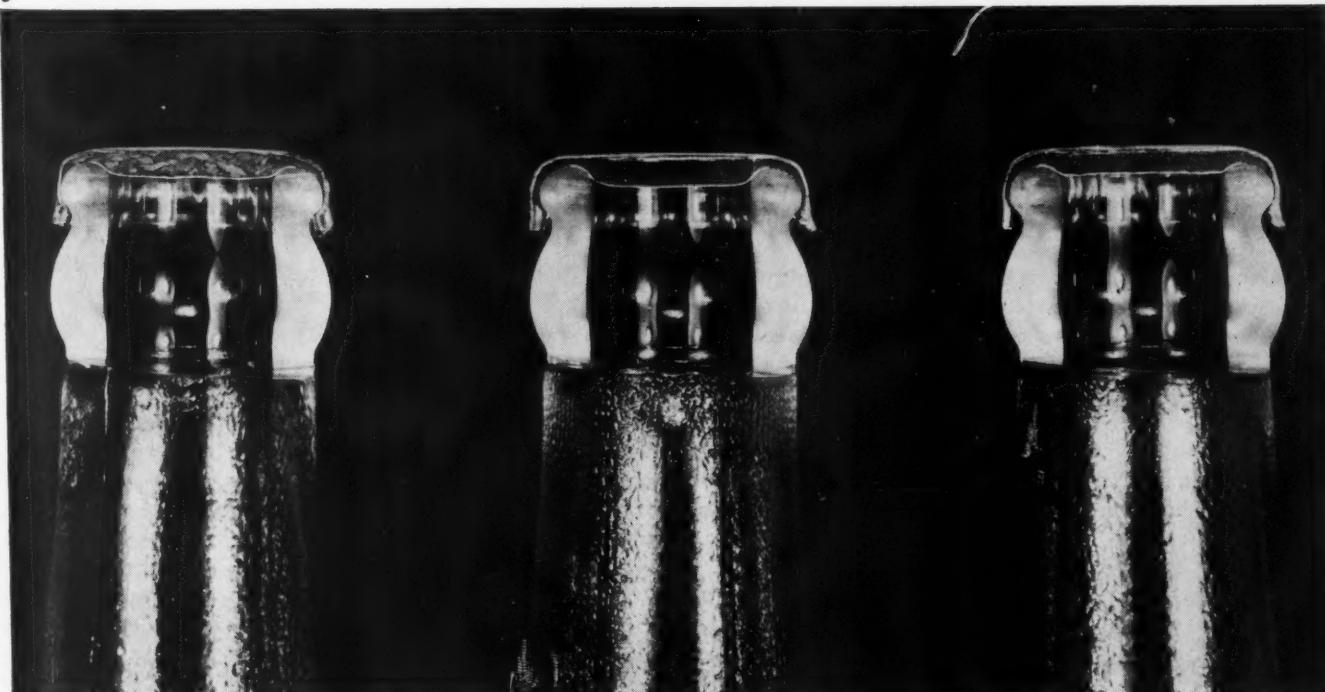
Liner material	Treatment given	Number of sealed bottles	Pressure in volumes of CO_2 per volume of liquid		
			High	Low	Average
Noreseal	None (one day after bottling)	62	2.59	2.45	2.52
Cork	Hot storage ¹	8	2.62	2.43	2.54
Noreseal	Hot storage ¹	141	2.60	2.35	2.49
Cork	Normal storage ²	13	2.65	2.43	2.54
Noreseal	Normal storage ²	151	2.60	2.39	2.48
Cork	Normal storage ²	18	2.72	2.43	2.53

¹ Stored at 100° to 110° F. for 10 to 21 days after bottling.

² Stored under normal room conditions for 30 to 90 days after bottling.



6



QUESTIONS and Answers

This consultation service on packaging subjects is at your command. Simply address your questions to Technical Editor, Modern Packaging, 122 East 42nd St., New York 17, N. Y. Your name or other identification will not appear with any published answer.

Crease with the grain

QUESTION: We are interested in the best way to run the grain on a Miehle cutting and creasing press for making folding boxes. Should the grain run around the cylinder or the long way of the cylinder to get the best creases and minimize the nicking problem to hold the sheet intact for delivery?

ANSWER: Many years of practical experience have shown that there is no question that the grain should run around the cylinder of a cutting and creasing press to secure the best creases. While this method does not minimize the nicks, this is secondary in importance to getting perfect creases. Were this sheet fed into the press in the opposite way, that is, against the grain of the boxboard, the creases would have to be made a little at a time as the sheet went around the cylinder and over the die, which would not give you a good clear crease. It appears to be common practice among all good folding box manufacturers to follow this procedure and this explanation may help you see the reason for so doing.

Color for lettering on tablets

QUESTION: We would like to color the depressed lettering on the face of one of our tablets. The idea would be to fill these letters with a contrasting color to make the printing stand out and make it more easily read. Can you give us any suggestions as to where such equipment for this operation would be available?

ANSWER: There does not appear to be any commercially available equipment adaptable for this kind of an operation. Since you are trying to fill a depression in the top of this tablet, it becomes an operation which is not suitable for conventional printing equipment. It would seem to me that this is a case where you would have to develop special equipment for this particular job. This equipment may consist of a coating roller which would apply over the top of the tablet a sufficient quantity of colored material to fill the depression. In a subsequent operation, the top of the tablet would be scraped slightly with a flexible doctor blade so that excess color would be removed. Since the top of this tablet is probably slightly curved, this would be an especially difficult job. This is a case of developing, either in your own Engineering Dept. or in cooperation with some machine manufacturer, a specialized piece of equipment to perform a job which is not now being done commercially.

Carbon dioxide in coffee

QUESTION: If I put carbon dioxide gas into a carton of coffee and glue-seal the ends of the carton, will that gas stay in the carton long enough to permit me to seal the carton in waxed

paper? Also are there any patents that would prevent the use of carbon dioxide gas or is it open for anyone to use in connection with the packaging of food products?

ANSWER: There are no active patents covering the fundamentals of using an inert gas in the place of air in food packaging. The only patents which are effective in this field are patents covering certain detail phases of this operation, certain specialized equipment for removing the air, etc. However, carbon dioxide gas will not stay in a wax paper wrapped package for more than a very short time. By flooding the inside of a package, putting the coffee which had been previously saturated with CO₂, you could very easily affect a seal, which at the moment would have a low concentration of oxygen. However, CO₂ would quickly depart through the wax paper and the oxygen would move in to take its place. The result would be that you would not get preservation of coffee against oxidation for any appreciable period of time. This whole problem of making a gastight package is a very complex one and it is even more difficult to find a material which is resistant to the transmission of CO₂. If you use nitrogen instead of CO₂, there appear to be more packaging materials which are resistant to its transmission. However, wax paper is permeable to all of these gases, and it is only a certain few of the plastic films that have any chance of making a long term package along the lines you have indicated.

Product with high freezing point

QUESTION: We have a medicinal product which is packaged in two size bottles, each in dozen lots in a corrugated case. Our problem is caused by the fact that this product has a very high freezing point. It solidifies at 34° F. or 2° higher than pure water. As a result of this, in the winter months, we have received complaints that the merchandise often arrives at its destination either frozen or after it has been frozen and the glass bottles broken. We are interested in obtaining some packaging method whereby this danger will, to a large extent, be obviated.

ANSWER: There is no means by which a package can be used to impart low-temperature resistance to a product. Obviously, the use of insulating materials, metal foils, etc., would not be effective for long periods of storage at low temperatures because the temperature inside and outside of the package would eventually adjust itself.

Since your product is packaged in a glass container there is no chance of your obtaining sufficient flexibility of the container to resist a solidification at low temperatures. You have probably done considerable work on trying to lower the freezing point of your product, but this appears to be the only satisfactory answer to your problem.



On machines like this Reynolds, for years, has rolled more light-gauge aluminum than any company in the world.

REYNOLDS METAL FOIL:

How foil wrap licked a fighting man's stubbornest enemy

THAT ENEMY, as every Army Quartermaster knows, is *climate* . . . a climate of all-penetrating moisture . . . or a climate of dry, sucking heat.

Ammunition, medical supplies, rations . . . all must be protected, completely, against this enemy. That—early in 1941—is where Reynolds metal foil came in.

At that time there was no such thing as a completely climate-proof wrapping seal . . . and the kind of rough handling the army contemplated was undreamed of in any manufacturer's specifications. Working against these odds and against time, Reynolds laboratories found the answers.

Today, American soldiers, sailors, and marines are receiving hundreds of different items packed in Reynolds foil that provides a positive barrier against moisture-

vapor transmission; Reynolds' special heat seal keeps these packages completely "climate-proof" . . . Reynolds lamination of foil with other extra-tough materials surpasses the specification for "rough handling."

A RECORD OF ENTERPRISE

Besides rolling more light-gauge aluminum than any other manufacturer, Reynolds enterprise has developed in America a great new source of aluminum for warplanes . . . has helped cut aluminum prices substantially . . . and by pre-fabricating plane parts from sheet aluminum in its own plants, has broken a stubborn bottleneck in handling aluminum scrap.

Tomorrow, the 40 plants producing Reynolds aluminum will be ready to supply America with the "metal of the future" this nation will need for so many essentials.



EMERGENCY LIFEBOAT RATIONS—part of the Navy's lifeboat equipment are these packages of chocolate bars wrapped in Reynolds protective foil.





WASHINGTON REVIEW

by R. L. Van Boskirk

● **It's Steel for Shell Containers**—The entire picture on steel and paper packaging materials may change drastically and suddenly as the result of an Army decision to switch from paper to steel for ammunition containers. It is learned from reliable sources that the decision has definitely been made.

All types of ammunition up to 155-mm. shells, with the exception of small-arms ammunition, are now shipped in individual paperboard cannisters. With millions upon millions of shells being produced, it can readily be understood that this has been one of the principal reasons for shortages of certain types of paper materials and paper processing facilities. What will be the effect of the release of these paper materials and facilities, and, conversely, what will be the effect of the new use of steel plate?

One thing appears certain: Packagers' supplies of metal containers, including steel drums and cylinders, will be shorter during the third and fourth quarters of this year than they have ever been during the war—contrary to previous predictions that supplies would ease during that period. This will be due not only to the ammunition container shift, but also to urgent new allocations for landing mats and landing barges. Rumors of tremendous cutbacks in other steel allocations are not supported in authoritative Washington quarters. Certain steel items used by Ordnance may be cut back, but this will not benefit containers to any extent.

The exact effect on paper packaging is not so easy to determine. The tremendous tonnage that has been going into ammunition containers is largely material that would ordinarily be used for boxboard rather than containerboard, and principal relief should be felt in the former field. Some of the outer ammunition tubes have been solid kraft, while others use a smaller amount of solid kraft for the winding sheet. By and large the material for these containers has come from waste paper, and one result may be an easing of the pressure for wastepaper collections.

Although the change to metal is said to have been decided upon, the exact form of the new container is not yet clear.

The choice is understood to be limited to two types, one an all-metal cannister and the other a metal outer tube with a paper inner tube. Both have undergone extensive field tests.

A large-scale adoption of metal will naturally make boxboard capacity available for other things, and may even reflect back to containerboard production in that it will make certain types of equipment and additional manpower available.

● **Prospective Changes in Ratings and Quota Orders**—Government officials who control paper are having more meetings, more conferences and, incidentally, more headaches than at any time since the emergency was declared.

Great interest centers around P-146 and L-317 because of apparent conflict. L-317 might entitle a man to 70% of the amount of boxes he used in 1942, but if the same product has a low rating under P-146, he might be lucky actually to get 10% of his quota. Actually, there is no conflict. P-146 gives a man a "hunting license" to secure boxes. L-317 tells him what the "bag limit" is.

At present, items with an AA5 rating are getting no boxes—even boxes for AA3 rated items are extremely scarce. There have been some complaints that AA2X was not sufficient to get a box.

Last month some Navy orders for bedding were held up because there were no boxes in which to ship them. The Army and Navy have frequently complained that box makers are filling civilian orders ahead of military orders. They have complained about refusal of some box makers to pay proper attention to smaller companies with whom the armed services are dealing. Aftermath of this situation was Directive 1 to Order P-146, which automatically gave an AA1 rating for fibre shipping containers on the following Navy items: wearing apparel, footwear and bedding.

To sum up: P-146 establishes ratings for all products so that their *relative* essentiality is definite; L-317 limits the *quantity* which may be used for all products so that some balance can be maintained in demand. Otherwise, a highly rated product could be expanded in vol-

ume of container use to take two or three or even ten times as much as was ever used by that industry previously.

Many problems are evident in amending these two orders. It is certain that many more items will be refused containers—especially such things as might be shipped without a box or an item of low essentiality, such as some types of glassware which require an unusual amount of inner packing and padding.

It is also possible that the rating order P-146 may be amended so that the various broad categories may be broken down into individual items. This is supposed to be actually in the mill now. For example, food. Ratings may possibly be classified according to essentiality. Certainly no one would object if pet food were given a lower rating than canned tomatoes. The same principle could be applied all the way down the line.

● **More Waste Paper**—The need for waste paper is still acute but there are certain favorable aspects. During the last two months more waste paper has been collected than at any previous time. It has been estimated that 85% of all domestically used shipping containers are now being returned for either re-use or salvage. The Government is also making plans to collect a portion of the used containers that have been shipped overseas.

● **The Invasion and Boxes**—There are almost as many opinions as there are boxes as to how a successful invasion of Europe will effect the box situation. Feeding and clothing continental peoples who have been starving and practically naked for from three to four years is a job that staggers the imagination. Of course, this country can only do a part of that job and politics may intervene to scramble the program. UNRRA has already distributed bulletins among various Government agencies calling attention to the fact that its program must not be neglected in making plans for future container production. But it is doubtful if they themselves know or have any idea of the amount that will be needed.

Large shipments have already been made to North Africa and Italy but that



OUR BEST-DRESSED MEN WEAR NO HOSE THIS YEAR!

The Chemical Warfare Service of the Army has provided this style note. ★ To lighten the load of paratroops, armored forces, assault infantry and amphibious troops, the Chemical Warfare Service has developed a streamlined gas mask which does away with the hose by attaching the canister directly to the facepiece.

It's a design that results in a gas mask lighter to carry, more comfortable to wear...and gives the soldier greater freedom of action. Crown Can is making the canisters for this new model... just as Crown Can made them for the older types.

Crown is proud of its part in the development of this new gas mask. For the duration, the whole Crown organization places the needs of our armed forces first... whether those needs are for weapons of war or for the cans to carry food to the front.

CROWN CAN COMPANY

NEW YORK • PHILADELPHIA

Division of Crown Cork and Seal Company, Baltimore, Md.



★ ★

CROWN CAN

★ ★

is a comparatively small job compared to what may be in front of us.

A great deal of material is now going to England where it is being stored in anticipation of needs on the continent on the theory that it will save long hauls later on.

● The Effect of Rationing on Containers

—When OPA announced that rationing was being temporarily discontinued for many food products, there was an immediate reverberation in the container field, especially when the reason given was that smaller amounts were now being used for Lend-Lease. But don't let that fool you. The Lend-Lease shipment lull is only temporary—more food and clothing, etc., will be shipped when the invasion begins to make progress. If the invasion does not make progress, no one can tell what will happen except that we will tighten our belts and probably start all over again. However, the increased movement in food due to curtailment of rationing certainly will not make containers nor boxboard more plentiful. The move was made in order to facilitate distribution of processed foods already on hand. But the canning season is getting under way and processors hope to put up more food than ever. Consequently, they will need more shipping containers and the pressure on containerboard mills will not be relieved one bit.

● Containerboard Jam on the Potomac

—There is confusion in Washington in the containerboard field. The confusion has spread from WPB to the industry and out into all the fringes. It is simply impossible to give an accurate picture of what is going on. Harassed and harried from the front, flank and rear, officials give every indication of not even agreeing among themselves and nothing seems to irritate some of them more than the voice of a reporter asking for information. Nevertheless, they have our sympathy and this reporter, for one, is thankful that he does not have to occupy one of their hot seats.

It seems that kraft containerboard for domestic use has been allocated up to 64% of receipts in the last quarter of 1943. But manufacturers were allowed only approximately 55% of former receipts for that quarter. Consequently they figure that the present allotment will permit them only about 35% of what they need in kraft containerboard. Furthermore, the allotments have no bearing on the rating pattern and they add to the general confusion on priorities.

According to spokesmen for the industry, it is doubtful whether there will be any shipping containers at all for such products as soap or tobacco by the middle of June unless drastic steps are taken at once.

Another queer situation popped up when

it was learned that 50,000 tons of pulp was diverted from containerboard to wrapping paper and paper bags during the first quarter. Then the Army and Navy stepped in and asked that somewhere between 60,000 and 88,000 tons of pulp be diverted from bags and wrapping paper back to containerboard for the second quarter.

Early in the second quarter it was understood that 300,000 tons of containerboard would be set aside for V-boxes, but officials now deny that figure and say the quantity for V-board will amount to between 235,000 and 250,000 tons. The industry has been using about 60,000 tons a month for V-board. Whether or not it will have the capacity to handle the added tonnage is not known, although Direction 2 to Conservation Order M-290 declares that no person may use equipment for solid fibre shipping containers to manufacture anything but V-boxes, and that orders for V-boxes must be filled, regardless of preference ratings on any other orders.

● WPB Packaging Committee—Faustine J. Solon, of Owens-Illinois, has been named chairman of a Packaging Committee to serve as a WPB clearing house for all problems pertaining to containers and wrappings.

Mr. Solon also will serve as a special assistant to the director of the WPB containers division and the director of the Forest Products Bureau.

The committee will include officials from the containers division, paper division and paperboard division. As claimant agencies, the Army, Navy, War Foods Administration and Office of Civilian Requirements also will be represented.

The packaging committee will recommend policies, initiate programs and act as coordinating agent for all packaging problems of production, use and conservation.

● Price Order Scrambles Re-Use Campaign—We would like to rear into OPA about Price Order MPR 529, which not only limits the price of used containers but puts the price on a poundage rather than a unit basis.

But fairness dictates the assertion that OPA was confronted with a serious situation. Prices for used boxes have been sky-rocketing to almost unbelievable heights—OPA claims that they have been running up to 700% higher than prices for new boxes. OPA has pointed out that it was impossible to establish ceilings on a per box basis because of a wide variety of types and weights.

The fact is that OPA is confronted with what looks like a perpetually insolvable problem for as long as the war lasts. It should also be pointed out that the change-over from unit to poundage pricing is like

any other change from current ways of doing business, which always raises a terrific howl and untold confusion.

In so far as changing from unit price to poundage price, OPA points out that it is not so difficult for any dealer or user to figure the poundage price per unit if he will study the order. Most users object because they have so many different types of containers and would not be able to pay the incentive return-price offered and keep under the ceiling. However, study of the order and experience of OPA indicate that nearly all the heavier grades of containers can be returned at the price now being offered by the manufacturer as an incentive for return and still remain under the ceiling with margin to spare. The lighter-weight boxes might go over the ceiling, but it would be possible for a user, such as a packing company, to arrange to have lighter-weight boxes returned with a preponderance of heavier boxes so that the average weight per unit would be raised and thereby bring the price under the ceiling, or meet the price offered by the company.

One of the first repercussions after passage of the price order was the cessation of used-box trade in Boston. It was reported that not a used carton was moved for about a week. We have no information as to how widespread this virtual strike by dealers has become, but OPA officials are seeking to find out.

Another dealer's objection was that most dealers do not have enough scales to put on their trucks in order to determine weight for which to pay poundage rates. It takes weeks to get a scale even with a priority rating.

Another objection came from one or two companies that had set up a rate incentive for their various jobbers all over the country. Their incentive price exceeded the ceiling. OPA had been told of this situation and was asked to make some provision for taking care of firms that had already established an incentive-return system. But OPA replied that such provision would be impossible.

This scrambling act is indeed serious, but, it must be admitted that mountainous prices for used containers would be just as bad for a great many business men as no containers at all.

● Paper Passes in Review—A review of what has been happening to the paper supply during the past month shows more on the short than on the long side. But there are several indications that long-delayed Government action is finally about to be applied.

The branch of the packaging industry now feeling perhaps the most acute pains is the wrapping paper and grocery bag division. It is estimated that only about half as many paper bags and half as much wrapping paper will be available during the second quarter of 1944 as was



IMMEDIATELY AVAILABLE A NEW TYPE EMBOSSED-TOP CORK

ARMSTRONG announces a new type embossed-top cork which is available in quantities sufficient to meet all present needs for top corks. A pressed composition top is used in place of the usual wood. Sizes in which the new top corks are made are limited to those commonly used for distilled spirits such as 28-3100, 28-3200, and 28-3210.

These new composition top corks offer you prewar sealing perfection in a closure you can buy now. Expertly cut and shaped from the finest corkwood, they provide reliable protection against leakage or evapo-

ration. Their strong composition tops with knurled edges make it easy for your customers to remove and replace them. And the good looking embossed-top design will add a touch of prewar smartness to today's standardized containers.

For further information about the new composition top corks, as well as any of the other Armstrong's Closures, get in touch with your Armstrong representative, or write direct to the Armstrong Cork Company, Glass and Closure Division, 5906 Prince Street, Lancaster, Pennsylvania.



ARMSTRONG'S EMBOSSED-TOP CORKS

available in the same period of 1943. The Forest Products Bureau is trying to increase the manufacture of substitute wrapping paper by mills that would ordinarily not produce such paper products. These substitutes of course would not be as strong as regular kraft wrapping paper, but they are considered adequate. The total production in the second quarter will be 11% less than in the first quarter of 1944, and 23% less than in the second quarter of 1943.

Another segment of the paper industry that container people have been watching with a more or less critical eye is the commercial printing field. There are some 50,000 of these firms. Regulation of their paper consumption is a difficult proposition, but a new amendment to their order marks the first step. They must now identify their product for WPB to determine the essentiality of their request. Commercial printing will be divided into two sections: functional printing and promotional printing. The first includes checks, letterheads, statements, etc. The second includes advertising, inclosures, catalogs, albums, etc. From here on out there will be a closer Government check on the essentiality of all printing and perhaps there will be less complaint about advertising circulars. But, as pointed out in this column last month, container users should be very careful that there are no examples of overpackaging in their own establishment before they criticise any other user of paper.

Another quite important order for the paper industry is the amendment to order L-83 which lifts restrictions on the procurement of paper mill machinery if deliveries are obtainable under MRO ratings as defined under MP Regulation No. 5. The same amendment eliminates the necessity for WPB approval to secure machinery orders of less than \$2,000 within a four-week period for repair and maintenance parts, or more than \$2,000 when there has been an actual breakdown or suspension of operations.

How Much Plastic for Cosmetics— A recent Government release reported that compacts, lipstick and rouge would be found in plastic cases to a large extent in 1944. The release went on to state that larger quantities of non-critical plastics are available and that the amount available in the first quarter of 1944 is more than manufacturers were allowed in the entire last half of 1943.

Inquiry reveals that the statement is somewhat misleading. It is true that 753,000 pounds of acetate were allocated in the first quarter of 1944 and this was followed by 572,000 pounds in April. But comparison with the last half of 1943 is scarcely logical since none was allocated until November and December when about 300,000 pounds was put out. No phenolic or polystyrene were allocated for

cosmetic containers in the first quarter except 33,000 pounds of polystyrene scrap. There is no indication that either will be available for cosmetic containers for an indefinite period. Urea has been allocated at 100% of all requests for a long period, but comparatively little has been used for this purpose.

Where the Cartons Are— The following table, indicating the distribution of 1943 production of solid and corrugated fibreboard cartons, should offer great assistance to users of cartons in their plans and programs for securing cartons, because it indicates where the greatest sources exist. Efforts may then be directed toward specific objectives in the form of known channels of trade:

Where boxes are opened:		Tons Paper
Place		
Liquor Dealers—includes beer		300,000
Hardware		150,000
Clothing stores		250,000
Drugs and cosmetics		100,000
Grocery stores		1,400,000
Furniture, etc.		200,000
Filling stations		40,000
Book stores, stationery, etc.		100,000

Briefly— Order L-232 has been amended to postpone until July 1 the percentage restriction on wooden shipping containers for vegetables and to permit quotas on an annual basis. . . The Army is now losing

Boxes for	Number of Boxes Made	Estimated No. Boxes Passing		Approximate Box Size		
		Through Hands of Waste Dealers		Length	Width	Depth
No. 2 cans	146,000,000	73,000,000		13 ³ / ₄	10 ⁵ / ₁₆	9 ¹ / ₈
No. 10 cans	82,000,000	40,000,000		18 ⁵ / ₈	12 ³ / ₈	7
14 ¹ / ₂ oz. Evap.	60,000,000	30,000,000		17 ⁵ / ₈	11 ³ / ₄	7 ⁷ / ₈
No. 2 ¹ / ₂ oz.	43,000,000	22,000,000		16 ¹ / ₄	12 ³ / ₁₆	9 ³ / ₈
1/6 Wine	30,000,000	15,000,000		13 ¹ / ₂	10 ¹ / ₈	11 ¹ / ₄
1/6 Spirits	60,000,000	30,000,000		14	10 ⁷ / ₁₆	10 ¹ / ₁₆
Pt. or Lb. Plain			1-tier 20	12 ⁷ / ₁₆	5 ¹ / ₄	
Round Glass	30,000,000	15,000,000	2-tier	12 ⁷ / ₁₆	10 ¹ / ₄	10 ³ / ₄
No. 3 Cylinder	24,000,000	12,000,000		17 ¹ / ₈	12 ¹³ / ₁₆	7
No. 1 Picnic	22,000,000	11,000,000		16 ¹ / ₄	10 ¹³ / ₁₆	8
Coffee Jar	20,000,000	10,000,000		17 ¹³ / ₁₆	13 ⁵ / ₁₆	12 ¹⁵ / ₁₆
Qt. or 2 No. Pl. Rd.	20,000,000	10,000,000		16 ¹ / ₄	12 ¹ / ₈	6 ³ / ₄
Cigarettes	20,000,000	10,000,000		14 ¹⁵ / ₁₆	11 ¹ / ₄	22 12M
	557,000,000	278,000,000				

Cartons in which the 1943 food pack was shipped are now coming through grocery stores for public consumption. Grocery stores should especially be urged to save six sizes of cartons—namely, those encasing No. 2, No. 10, 14¹/₂ oz. No. 2¹/₂ cans and No. 3 cylinder and No. 1 picnic. Other sizes could be used, if paper bags are not available, as carry-out cartons by the consuming public. Incentive price arrangements with grocery stores should be most effective in getting the desired cartons back into the re-use channels.

Cigarettes are now being shipped in No. 2¹/₂ canners' boxes, shirts in No. 10 canners' boxes, and soap in nearly all the sizes shown. It is possible either to paste labels on the boxes to identify them or to turn the box inside out for printing. Masking paint may be used to obliterate markings. It should be noted that the turning of boxes inside out may give a surface which is not weatherproof, and which may not print as satisfactorily as desired.

The importance of grocery stores as a source of cartons and paper is indicated by the following table:

only one-tenth as much food out of the average consignment as at the start of war and saving 15% of space through new packaging methods. . . The Army bought 600,000 tons of paper products in 1943, or \$70,000,000 worth; used 3,000 tons of waterproof paper alone, and 650 carloads of wrapping paper and paper bags. . . The 1944 pack of canned fruits and vegetables for the QM Corps must be labeled "44" on container cases. . . Members of the Industry Committee have endorsed a suggestion that boxboard for folding and setup boxes be allocated and priorities for cartons established. . . The Retail Trade Industry Committee has recommended a declaration of policy by WPB to serve as a guide to stores in adjusting their business to shortage of wrapping materials. . . The textile bag industry expects an amendment to M-221 soon, but anticipates no great change—the amendment will be devoted largely to condensing and simplifying the present order. . . A reduction in thickness of paperboard used for laundry boxes has been recommended by an industry task committee.



SHEDDING WATER LIKE A DUCK WITH GLU-WELD

MEDICAL SUPPLIES going to our armed forces overseas are subjected to mighty hard treatment. That is why it's so important for all these supplies to be securely labeled and packaged with waterproof adhesives. And GLU-WELD adhesives assure the arrival of valuable war materiel at the fronts with labels securely affixed regardless of climatic conditions.

IMPORTANT TO DRUG and CHEMICAL MANUFACTURERS

Medical Department Tentative Specification No. 3073-C was issued on March 25, 1944 to supersede Specification No. 3073-B. Paragraph D-2 of this specification specifies that labels on unit containers shall be securely affixed by a non-water soluble adhesive. Testing qualifications require samples to be completely immersed in tap water of 75° for 48 hours, removed and dried for 24 hours. Separation of an individual label from container may not exceed 25% of glued area.

Paragraph D-4 states that corrugated fibreboard packs must be sealed in a waterproof paper bag or wrapper. The seams, joints and closures of the paper bags must be sealed with asphaltum or a non-water soluble adhesive, and their construction must provide protection equal to that expected of the body material.

We recommend for waterproof labeling C-802 GLU-WELD. For bag liners, C-827 or C-255 GLU-WELD is recommended.

Write today for full information about GLU-WELD



IN THE MIDWEST

The F.G. Findley Company

1230 NO. 10th STREET • MILWAUKEE 5, WIS.

IN THE EAST

Union Paste Company

1605 HYDE PARK AVENUE • HYDE PARK, MASS.

U. S. patent digest

This digest includes each month the more important patents which are of interest to those who are concerned with packaging materials. Copies of patents are available from the U. S. Patent Office, Washington, at ten cents each in currency, money order or certified check; postage stamps are not accepted.

DISPENSING CARTON. J. C. Peurung, Cincinnati, Ohio. U. S. 2,342,968, Feb. 29. A dispensing carton comprising an open-top body formed with a base, side and end walls.

METHOD OF WRAPPING CHEESE AND PRODUCT. D. E. Richardson & R. J. Chadbourne (to Martin Bros., Denver, Colo.). U. S. 2,342,969, Feb. 29. A method of wrapping cheese comprising: forming slits in a sheet of flexible, absorbent material; moistening the sheet; wrapping the cheese in the moistened sheet, and then forcing the moistened sheet tightly against the cheese.

DEVICE FOR DISPENSING PASTE-LIKE COMMODITIES. J. M. Shaw, Toronto, Ontario, Canada. U. S. 2,342,976, Feb. 29. A dispensing device for tooth paste and the like.

PACKAGING. J. E. Snyder (to Wingfoot Corp., Wilmington, Del.). U. S. 2,342,977, Feb. 29. The method of wrapping an article in a thermo-stretchable, thermo-elastic sheet, which comprises heating the sheet until it becomes stretchable and elastic.

APPARATUS FOR LOADING GRANULAR MATERIAL INTO RECEPTACLES. R. K. Hellman (to Great American Industries, Inc., Meriden, Conn.). U. S. 2,342,735, Feb. 22. An apparatus including a measuring-member provided with loading passage extending through a sleeve, and to fit within the charging-opening of a container in such manner that granular material may be fed into said container.

SEALING MACHINE. J. J. Willims (to Hazel-Atlas Glass Co., Wheeling, W. Va.). U. S. 2,343,104, Feb. 29. An apparatus for sealing caps on containers.

SHIPPING CONTAINER. E. G. Hellayar, Norwichtown, Conn. U. S. 2,342,668, Feb. 29. A container for cloth material or like, end members having a slot therein, with a plate mounted in a slot.

MEASURING & DISPENSING DEVICE. M. Pearl, Perth Amboy, N. J. U. S. 2,343,024, Feb. 22. An attachment for a container comprising a shell with a partition inside dividing the interior into a pair of chambers, and equipped with a

spout for dispensing liquid as well as measuring same.

METHOD & APPARATUS FOR TAPPING ARTICLES. E. Klug, Suffern, N. Y. U. S. 2,343,148, Feb. 29. The method of applying adhesive tape to articles mechanically.

CIGARETTE PACKAGE. M. A. Hannigan (one-half interest to P. W. Otto of Springfield, Mass.). U. S. 2,346,106, April 4. A cigarette package comprising in combination a container having front, rear and side walls and a closed end, end flap portions extending from the upper ends of each of said walls entirely across the width thereof.

BOTTLE HOLDER. E. L. Arneson (to Morris Paper Mills, Chicago, Ill.). U. S. 2,345,565, April 4. A knock-down carrier carton comprising a receptacle formed of paperboard or the like shaped and creased to provide a bottom panel and two side panels which have their upper ends flexibly connected along a transverse fold line.

BOTTLE CARRIER. E. L. Arneson (to Morris Paper Mills, Chicago, Ill.). U. S. 2,345,566, April 4. A bottle carrier comprising a sheet of paperboard or the like and creased to provide a bottom panel upon which bottles may stand and side panels extending upwardly from opposite side margins of bottom panel.

BOTTLE HOLDER. E. L. Arneson (to Morris Paper Mills, Chicago, Ill.). U. S. 2,345,567, April 4. A bottle carrier comprising a receptacle formed of a sheet of paperboard or the like and having a bottom and side panels arranged in triangular relationship and provided with a handle at the upper ends of the side panels.

BOTTLE HOLDER. E. L. Arneson (to Morris Paper Mills, Chicago, Ill.). U. S. 2,345,568, April 4. A collapsible bottle holder comprising a sheet creased to form a container having a bottom, a pair of side panels connected to each other at their upper and lower ends.

BOTTLE CARRIER. C. H. Goodyear (to Fibreboard Products, Inc., San Francisco, Calif.). U. S. 2,345,746, April 4. A collapsible bottle carrier comprising a handle panel, side walls parallel with the

handle panel, extensions upon the ends of the side walls creased for folding to provide a plurality of cell forming sections.

PRESERVING BOTTLE CAPS, BANDS & SEALS. T. F. Banigan. U. S. 2,306,371. Continuous gel regenerated cellulose which has been produced, bleached and washed in the usual manner is impregnated with an aqueous solution comprising glycerine 8% and phenyl biguanide 0.25% by passage through a vat containing the fluid. Tubing thus formed is ready for immediate use as bottle seals or may be shipped in the above solution for later use. No bacterial or fungicidal action develops in these bands or seals.

BOX CARTON OR SIMILAR DEVICE. M. I. Williamson, New York, N. Y. U. S. 2,345,646, April 4. A folding box comprising lateral wall panels forming a box body.

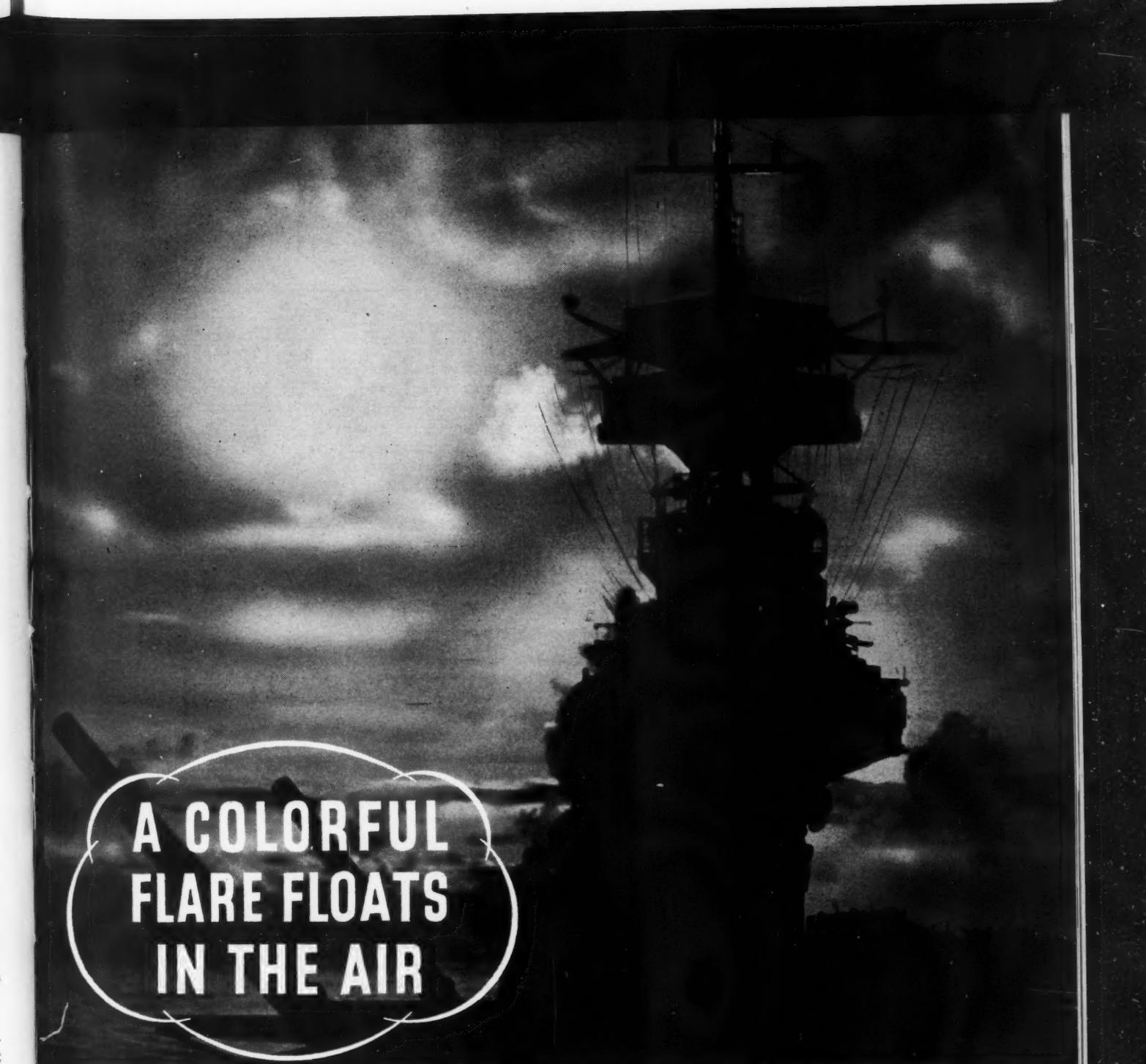
HOLLOW WALLED CARTON. M. A. Smith (to Chicago Carton Co., Chicago, Ill.). U. S. 2,345,716, April 4. A paperboard box having a bottom wall and relatively transversely extending tubular side walls, said side walls being foldably connected to said bottom wall and being foldable, one in advance of the other.

FOLDING BOX. R. J. Gruenberg and E. L. Stern of California. U. S. 2,345,810, April 4. A prefolded box composed of a blank having longitudinal creases extending from end to end thereof and transverse creases extending between said longitudinal creases and defining the bottom, sides and ends of the box.

CONTAINER FOR TOBACCO, CIGARETTES, PIPE CLEANERS AND THE LIKE ARTICLES. N. Sevastopoulos (to E. Sevastopoulos, New York, N. Y.). U. S. 2,346,087, April 4. A smoker's package comprising an outer container open at one end, an inner container for tobacco or cigarettes, telescoped within the outer container, a cover over the open end of the outer container, said outer container being formed with a slot, means passing through the slot and engaging the inner container to move the same relative to the outer container.

BOX LOADER FOR CANS. J. Albertoli, San Francisco, Calif. U. S. 2,345,560, April 4. A machine for loading cans into boxes with assembling compartment into which the cans are fed to lie parallel and a pusher for pushing the assembled cans longitudinally out of the compartment toward the box to be loaded.

METHOD OF PACKAGING RAZOR BLADES. R. Nadeau, Newark, N. J. U. S. 2,346,044, April 4. A continuous process method of wrapping razor blades.



A COLORFUL FLARE FLOATS IN THE AIR

GIGANTIC bursts of billowing smoke . . . smoke that is colored . . . smoke that signals a telling story . . . rise from the seas and from the fields of battle wherever American men fight the enemy. The same Heekin colors used to produce for you a peace time metal lithographed package . . . to help sell your product . . . produce these signal clouds of dif-

ferent colors. Thus, the gigantic Heekin factories are virtually all-out in war production. But right now you may be looking ahead to a newer, more colorful metal package. Maybe now is the time to plan your sales and merchandising program for the future. Perhaps we can be of service . . . there is no obligation.

THE HEEKIN CAN CO., CINCINNATI, O.

H E E K I N C A N S
Lithographed
I T H H A R M O N I Z E D C O L O R S

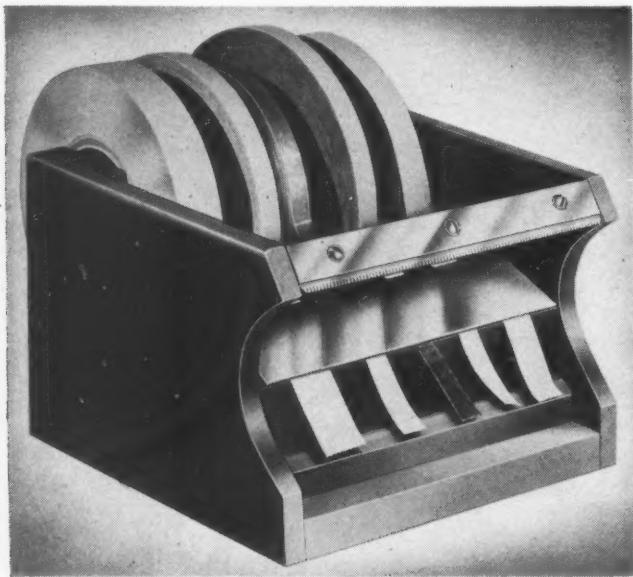
Equipment and Materials

NEW BASIC RESIN

The U. S. Stoneware Co., Akron, O., announces a new basic resin, Duralon, which is said to have possibilities both as a pure resin for casting, for surface coatings, for impregnating, bonding and laminating purposes. Currently available for limited commercial and experimental use, the resin is a furane derivative, characterized by low water absorption, insolubility in solvents, stability and ease of workability.

DISPENSER FOR TAPES

Tapemaster, a tape dispenser for paper, cellophane or cloth industrial tapes, is a new product distributed by Bauer & Black, division of The Kendall Co., Chicago. The cutting knife is at-



tached to a rocker arm which provides a braking surface to grip the tape while the desired length is flicked off against the cutting edge. As the brake releases, a short tab of tape is ejected for the next use. The tape is wound on a 3-in. inside diameter core.

LATEX DISPERSION IN WATER

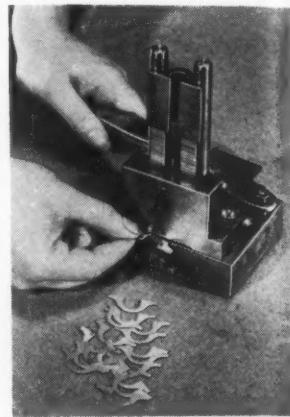
Creation of a true colloidal latex of one of its GEON vinyl chloride resins in water, without the use of any organic solvents, is announced by the B. F. Goodrich Co. The GEON dispersion resembles rubber latex in appearance. Vinyl resins, including the new latex, are under allocation. Quantities for experimental use are available, however. Among the major potential applications of the GEON latex are in *coating paper, paperboard and boxboard*, and in the casting of continuous films.

NEW COLD PADDING GLUE

One of the newest developments of adhesive chemical research is Pliatab, a synthetic-resin type cold padding glue. According to Paisley Products, Inc., Chicago and New York, this new product successfully replaces prewar rubber latex compounds. Pliatab is available in red or white (natural) color, in containers ranging from 1 quart to 55 gallon drums. It is ready to use, applied by water-moistened brush, or dilutable with water for spray guns. Thoroughly flexible, yet so tough the pads stand up under roughest handling, it can be used with or without cloth backings.

COUNTER FOR SHIMS

Faced with the problem of counting out a specified number of two-thousandth of an inch thin connecting rod bearing shims in the packaging of Studebaker truck parts, engineers developed this counter. The shims are first stacked vertically in the machine and weighted down. A hinged plunger is then moved against the bottom of the stack, pressing a measured thickness of shims through a slot. Extreme accuracy was necessary in the machining of the face of the plunger, the slot and the weight placed on top of the shims. In addition, a razor edge was worked on the plunger to separate groups of shims. The counting was formerly done by scale. The idea greatly reduced time on the job.

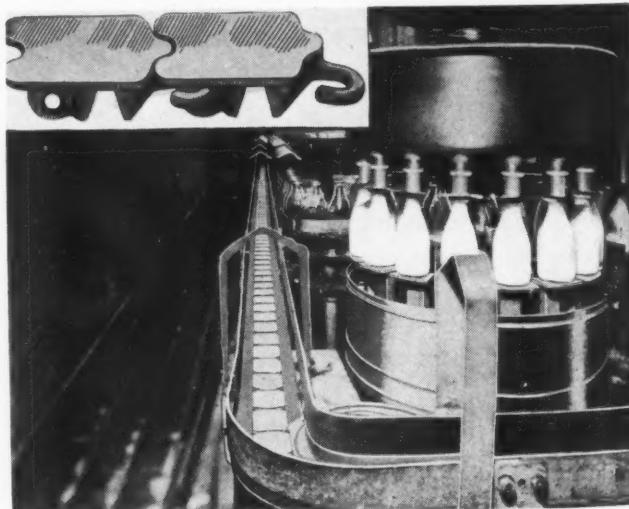


NYLON MOLDING POWDER PRICE CUT

E. I. du Pont de Nemours Co. announces a price reduction of 50 cents per lb. for nylon molding powder. The new price is \$1.60. Supplies of nylon molding powder are presently under the control of the Nylon Allocation Committee and sales have been confined 100% to the armed forces.

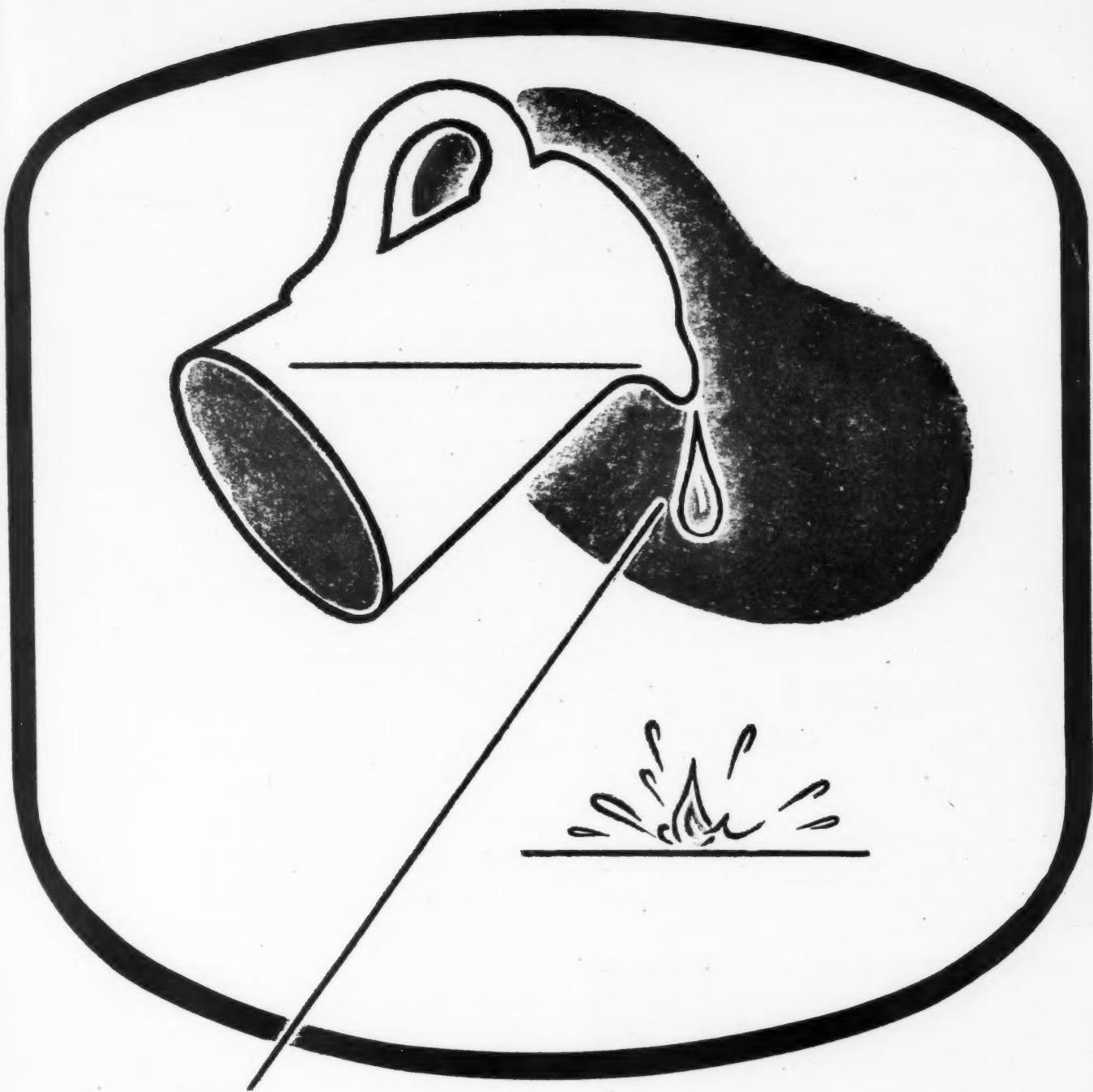
NEW DESIGN CONVEYOR LINK

Bronze Die Casting Co., Pittsburgh, is casting conveyor chain links of "Albro" metal by a new method. This material has the metallurgical qualities of being resistant to sulphuric acid and other acids and alkalies. It is claimed that tests have shown that Albro chain of the same size links as steel chain will carry and



lift a substantially greater weight than steel chain of the same dimensions. The new method of casting is said to produce conveyor chain links which need practically no machining. This has reduced the cost of the links to the point where they are economical for replacement as well as ideal for installation on new equipment.

The new design link shown in the inset eliminates a connecting link which reduces wear and con- (Continued on page 146)



Do YOU BELIEVE A WATER-DISPERSED MATERIAL MIGHT ANSWER YOUR PROBLEM?

We disperse synthetic rubbers, resins, gums and many other rubber-like materials in water. Let us know your requirements and we probably can develop a water-dispersed elastomer or composition that will meet your particular need.

Dispersions Process, Inc.

under management UNITED STATES RUBBER COMPANY

symbolizing research and development

in water dispersions



1230 SIXTH AVENUE, NEW YORK 20, N.Y.

Plants and People

J. Preston Levis, president of Owens-Illinois Glass Co., has announced the purchase of an 80-acre plant site south of Atlanta, Ga. Preliminary plans for the construction of a glass container factory have already been completed by the company's engineering department, but the actual date for starting the project will not be announced until priorities and other preliminary problems have been solved.

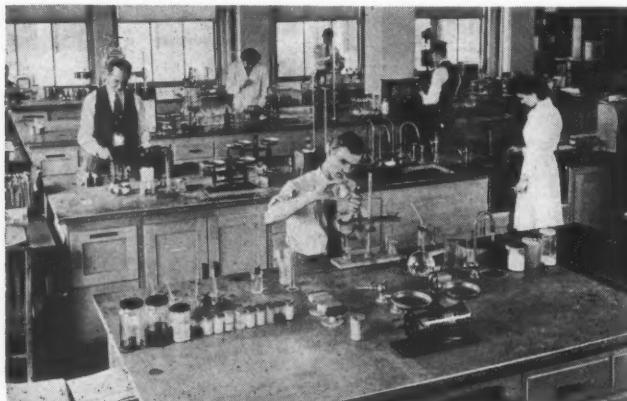
S. K. Beetham has been appointed advertising manager of the Owens-Illinois Can Co., according to S. J. McGiveran, vice-president and general sales manager. T. K. Almroth is general advertising manager of Owens-Illinois.

Charles M. Dooley has recently joined the staff of the merchandising division of this company and he will report to H. A. Trumbull, manager of merchandising for the company's Glass Container Division.

H. C. Hopkins has been appointed general manager of purchases of the American Can Co., according to D. W. Figgis, president. Simultaneously from the Pacific coast comes the announcement from E. H. Bell, vice-president, that Jesse H. Hamilton is now assistant manager of sales for the Pacific division with headquarters in San Francisco.

The Allied Asphalt and Mineral Corp. has completed an extensive reorganization in the executive ranks of its production, research and sales personnel. All manufacturing processes are now under the direct supervision of Glenn P. Smith, chemical engineer, and Samuel C. Robinson has been placed in charge of research and development projects.

Clyde A. Benson has joined the staff of Arno W. Nickerson to take part in development work in connection with protective packaging for frozen foods, dehydrated foods and dairy products. Mr. Nickerson's offices have been moved to 441 Lexington Ave., where he now has larger quarters.



Dr. Willard Henry Dow, president of The Dow Chemical Co., Midland, Mich., has been selected to receive the Gold Medal Award of the American Institute of Chemists for the year 1944.

The award is for his work in finding out how to make enough magnesium to produce thousands of fighting airplanes and enough styrene to supply our needs for synthetic rubber.

Dr. Dow is regarded as one of the foremost leaders of research in the country.



Dr. Willard Henry Dow

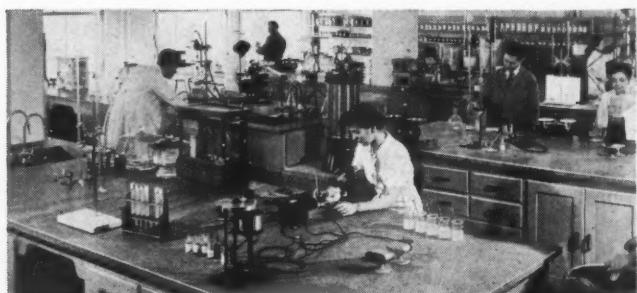
Werner W. Schaumann has been appointed vice-president and sales manager of the west coast division office of Rossotti West Coast Lithographing Corp., San Francisco, Calif.

The National Paper Box Mfgs. Assn. held its 26th annual meeting at The Drake, Chicago, May 21 to 24. War agency speakers dominated all four sessions of the business program.

Robert R. Richardson, formerly secretary and director of purchases of The Gardner-Richardson Co., was elected to the office of vice-president and secretary at the annual stockholders' meeting held recently. All other officers and directors were re-elected for the ensuing year.

Felix N. Williams, production manager of the phosphate division of Monsanto Chemical Co., has become general manager of the company's plastics division at Springfield, Mass., it was announced by Charles Belknap. (Continued on page 146)

Photos show three main units of the new National Starch Products, Inc., laboratories which occupy an entire floor. Not shown are the textile, resin and training laboratories and the experimental kitchen for work on edible starches as well as small capacity pilot plants for both the Adhesives and Starch Divisions. The installations are brand-new, and a great deal of additional testing equipment representing the latest design is in evidence throughout. National feels that it now has the facilities to service the exacting requirements of war industries and is prepared to solve many of the adhesive and starch problems involved in postwar planning and reconversion.



HEY KNOW WHAT THEY'RE FIGHTING FOR*

"That's Not Talking Tolerance, That's Living It!"

This is a funny world ... the things that at first seem a set-back in our lives quite often produce the elements that make us better men and better Americans.

It seems to me that there are three prime things to be learned in this Army, and none of them is a required course in the art of War. I like to call them Tolerance, Appreciation of Home, and Patriotism.

Tolerance in finding out that the fellow from Iowa has as keen a humor as the Broadway boy; that the fellow from the South can fight just as well as the lad from Minnesota; seeing a Catholic Chaplain handle the spiritual needs of Moe Goldberg from Brooklyn and hearing that slight Irish brogue whispering words of condolence in Hebrew; listening to a Chaplain of the Baptist faith leading a Hail Mary on Sunday because the priest was unable to arrive in time for Mass -- that's not talking Tolerance, that's living it!

... It's all best summed up by a remark I heard the other day -- "Hell, soldier, I don't come from any state. I come from the U.S.A."

Sincerely,

(signed) Lt. Johnny Hayden, Jr.

excerpt from a letter
written by Lt. Johnny
Hayden, Jr., with the USAF
China to H. E. Roden.

BONDS FOR LETTERS!

\$25.00 WAR BONDS WILL BE
AWARDED EVERY MONTH FOR
EACH LETTER PUBLISHED.

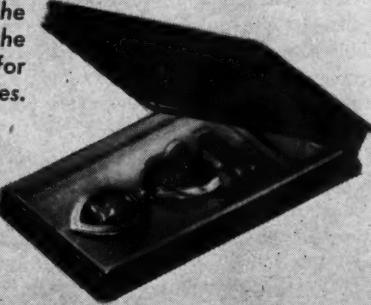
Have you received a letter from a serviceman illustrating the spirit of cooperation and understanding which unifies America's fighting men of all faiths, races, backgrounds? If so, send it to Arrow Mfg. Co. You and the writer will each receive a \$25.00 War Bond if letter is accepted for publication. All letters will be returned.

*ONE OF A SERIES OF ACTUAL LETTERS FROM MEN WITH THE ARMED FORCES, EXPRESSING THE DEMOCRATIC IDEAL -- A POWERFUL WEAPON IN WAR, A PROMISE OF ENDURING PEACE FOR ALL MANKIND.

Arrow is proud that it is today the country's largest supplier of the boxes which hold the medals for the heroes in our Armed Forces.

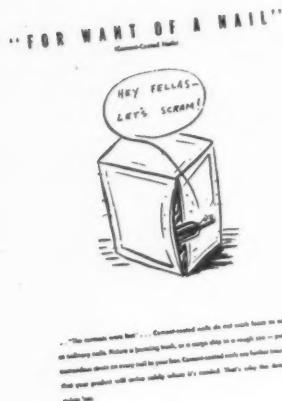
Arrow

BOXES AND DISPLAYS



HOW MANUFACTURING COMPANY, INC., FIFTEENTH AND HUDSON STREETS, HOBOKEN, NEW JERSEY

For Your Information



do more to correct packaging errors than any of the weighty tomes which have been published to date.

Lt. Colonel Howard F. Currie, M.C., Commanding, Army Medical Purchasing Office has this to say in the introduction:

"I wish manufacturers of medical supplies and equipment could travel to the front with their products. If they did, I am confident that they would realize the necessity for adequate packing to assure the safe arrival of their products at destinations in combat zones."

The Ninth Annual Convention of the Toilet Goods Assn. was held at the Waldorf-Astoria on May 18 and 19. Of especial interest was the talk made by F. J. Solon, assistant to the director, Containers Branch, WPB, entitled "A Survey of the Paperboard and Container Situation."

Jean Hollander, director of consumer information of the Can Manufacturers Institute, has been making guest appearances on leading "homemaker" radio programs to explain the scarcity of cans on the home front by describing the vital wartime jobs being filled by tinplate containers. Her radio appearances are keyed to the Institute's current wartime advertising and public relations program interpreting can shortages to the public.

The School of Design in Chicago has become the Institute of Design by the action of its new board of directors it was announced recently by Walter P. Paepcke, chairman of the board who is also president of Container Corp. of America. Courses are offered in Basic and Product Design, Visual Fundamentals, Lettering, Advertising Arts, Painting, Modeling, Occupational Therapy, Weaving, Architectural and Interior Design, Prefabrication, Mechanical Drafting, Blueprint Reading, Production Illustration, Photography, Motion Pictures, Display, Ceramics and Life Drawing.

The Paper Package Co., Indianapolis, Ind., has instituted an exchange service for all of their customers and prospects. It was started with a three-fold purpose in mind—first, to move a lot of obsolete packaging materials for their customers; second, to enable some of their customers to get packaging material to fill their immediate needs which the company cannot supply at this time; and third, to help relieve the paperboard shortage.

"The Modern Barrel Manual" published by The Associated Cooperage Industries of America, Inc., is the answer to the many requests for wooden barrel information received by this organization in the past. The manual is a complete and compact

"There's No Bush Terminal in Buna" reads the caption on the cover of the booklet called "How Important Is Packing and Packaging?" which has been published in the interest of better packing and packaging by the Army Medical Purchasing Office and War Advertising Council, sponsored by Reynolds Metals Co. A page of this 14-page booklet is reproduced to show how the story is put across. Eleven cartoons like this one will probably

reference book covering all three types of wooden barrels—slack tight and beer. It gives shipping regulations; it tells how to handle barrels both by hand and automatically; it describes various linings and tells how to use them and, by means of diagrams, it points out the best features of each of the three types.

A profusion of charts and pictures shows where and how to use each of the three types of barrels. Diagrams give the proper method of stacking, storing and shipping. And a portion of the section called "General Barrel Information" describes the tools to be used in order to get the most use from each barrel.

The manual is furnished without charge to all who may be interested by writing the Assn. at 408 Olive St., St. Louis, Mo.

"Waxes for Today and Tomorrow" is the title of a new technical bulletin which has just been issued by Distributing and Trading Co., 444 Madison Ave., New York. The booklet lists 36 different kinds of waxes together with their specifications and current prices. It is claimed to afford a ready reference for production men who may have occasion to modify their formulas or experiment with new ones. Copies may be had by writing the company.

For executives who want to keep posted on the progress of aluminum, Reynolds Metals Co. has decided to publish Aluminum Progress, a four-page booklet planned to give a bird's-eye view of the latest news about this metal and its postwar applications.

The ninth booklet has been added to the "Little Packaging Library" published by The Hinde & Dauch Paper Co., Sandusky, Ohio. This booklet entitled, "How to Prepack in Corrugated Boxes" gives illustrations and information regarding corrugated boxes for prepacking assignments, emphasizing the necessity of engineering each individual shipping box for the problem it must solve. It reviews many different types of products already prepacked with outstanding success, and it suggests investigating this packaging method for post-Victory packaging problems. Free copies may be had by writing the company.

Lyon Metal Products, Inc., Aurora, Ill., had war contract terminations trouble as far back as 1943. The problem was to compile the necessary facts and figures so that claims could be presented and paid in the quickest possible time, without disrupting the flow of regular work of the organization. The plan evolved attracted the favorable attention of the Termination Officials who suggested that it be put in booklet form for firms who had not yet had the experience. The finished job "How One Company Organized to Handle War Contract Terminations" may be obtained free of charge from Lyon Metal Products, Inc.

A male and parcel post rate card is being offered by the Marsh Stencil Machine Co., Belleville, Ill., which covers the new postal rate in effect since March 26. It will be sent upon request.

Lawrence K. Harper, president of the National Dehydrators Assn. and Sardik Food Products Corp., has written a book titled "Dehydration, Its Postwar Future," which deals principally with the future niche of dehydration in the food industry more comprehensively than has ever been attempted before. It is a highly analytical and frankly critical book about the whole subject, its brief past, its volatile present and its hopeful future. Mr. Harper uncovers the industry's weaknesses as well as its hitherto unsuspected possibilities. The book is published by E. W. Williams Publications, Inc., N. Y.

Sound the Alert!

MANAGEMENT

LABOR

—for the 5th War Loan drive during June and July. The need for the 5th War Loan is immediate, crucial. For impending events may make the 5th the supreme financial effort of the war.

The U. S. Treasury has set the overall goal at \$16,000,000,000 — \$6,000,000,000 from individuals alone. This is the biggest sum ever asked of the American people—and it must be raised.

That's why the U. S. Treasury asks Management and Labor to sit down together and organize—NOW!

For organization—good organization—has been responsible for the excellent showing of the payroll market. And its most important single superiority has been personal solicitation—desk to desk,

bench to bench, machine to machine personal solicitation. 71% of all persons on payroll deductions were solicited for the 4th War Loan.

Now, to personal solicitation, add the sales incentive of a definitely established plant quota. Build your campaign around a quota plan. Set up departmental goals. Stress percentage of participation figures. Stimulate group enthusiasm.

In planning your quota campaign, work in close cooperation with the Chairman of your War Finance Committee. Everything is set to make the 5th War Loan drive a huge success—with your help!

(Note: You've read this message. If it doesn't apply to you please see that it reaches the one person who can put it in action!)

Here's the Quota Plan:

1. Plant quotas are to be established on the basis of an average \$100 cash (not maturity value) purchase per employee.
2. Regular Payroll Savings deductions made during the drive accounting period will be credited toward the plant quota.
3. 90% of the employees are expected to contribute toward raising the cash quota by buying extra 5th War Loan Bonds: 1—Outright by cash. 2—By extra installment deductions. 3—By extra installment deductions plus cash.

Example: JOHN DOE Mfg. Co. — 1,000 Employees
 $1,000 \text{ employees} \times \$100 = \$100,000 \text{ Cash Quota}$
 Regular Payroll deductions during the eight weekly payroll Accounting Periods of June and July
 $30,000$
 $\$70,000$ (to be raised by sales of extra Bonds to at least 900 employees)

ORGANIZE

SOLICIT

DELIVER



The Treasury Department acknowledges with appreciation the publication of this message by

MODERN PACKAGING

* * * This is an official U. S. Treasury advertisement—prepared under the auspices of Treasury Department and War Advertising Council. * *

TABLE III—PRESSURE TESTS ON NON-ALCOHOLIC CARBONATED BEVERAGES SEALED WITH NORESEAL
(Sheet liner density 0.65–0.68, thickness 0.080–0.90 in.)

Beverage bottled and kind of liner used	Number of tests	Pressure in volumes of CO_2 per volume of liquid			Normal storage ²			
		Hot-cold storage ¹	Hot-cold storage ¹	Hot-cold storage ¹	Normal storage ²	Normal storage ²	Normal storage ²	
Cola A, Noreseal	4	3.81	3.68	3.75	10	3.92	3.30	3.71
Cola A, Cork	5	3.95	3.80	3.86	6	3.99	3.80	3.89
Cola B, Noreseal	14	3.87	2.72 ³	3.55	18	3.83	2.85 ³	3.59
Cola B, Cork	6	3.89	3.66	3.75	17	3.80	3.40	3.66
Root beer A, Noreseal	6	2.94	2.77	2.86	14	3.40	2.56 ³	2.93
Root beer A, Cork	6	2.97	2.87	2.92	12	3.04	2.65	2.88
Root beer B, Noreseal					18	3.65	2.55 ³	3.42
Root beer B, Cork					18	3.70	3.33	3.48
White soda, Noreseal	19	5.30	4.26	4.94	25	5.24	4.42	4.92
White soda, Cork	5	4.83	3.66	4.41	4	5.09	4.62	4.83

¹ Two days at 100° F. and 1 day at 40° F., alternately, for 10 days. A few of the bottles were kept at 100° F. for the entire period.

² Ten days at normal room temperature, 70°–80° F.

³ Only low value in series.

Noreseal—

(Continued from page 119) labeling, dropping into cartons, etc. As controls, bottles sealed with the usual composition-cork liners, just prior to and immediately after using the Noreseal liners, were taken. The bottled liquids were subjected to various treatments designed to simulate normal and extreme conditions of storage and handling in the average life of these liquids, after which the sealed bottles were tested for pressure, in the case of carbonated beverages, or for vacuum, in the case of hot-bottled foods. Taste tests were made by qualified tasters in the various plants to determine if the taste had been affected by the sealing composition.

Typical results obtained with Noreseal liners punched from sheets are given in Table I. It may be seen from these data that Noreseal is fully equal to cork under the conditions used in these tests. Particular attention is called to the extended hot storage and normal storage tests since they are considered to be quite drastic. The conditions used in these tests are considerably more drastic than those usually encountered in the normal life of the beverage.

The taste of the beer from bottles sealed with Noreseal and subjected to the above tests was fully as good as that obtained with cork-sealed beer. In fact, some of the hot-stored beers, as well as some stored for the longer periods under normal room conditions, had a greater degree of stability when sealed with Noreseal. This was particularly true when unspotted composition cork was used in the control tests.

Similar results were obtained with Noreseal liners made by pouring the fluid compositions directly into the crowns, as shown in Table II. No leakers were found in this test, either after storage at high temperatures or long storage at normal temperatures. It should be noted that the beer used in this test had a lower initial gas pressure.

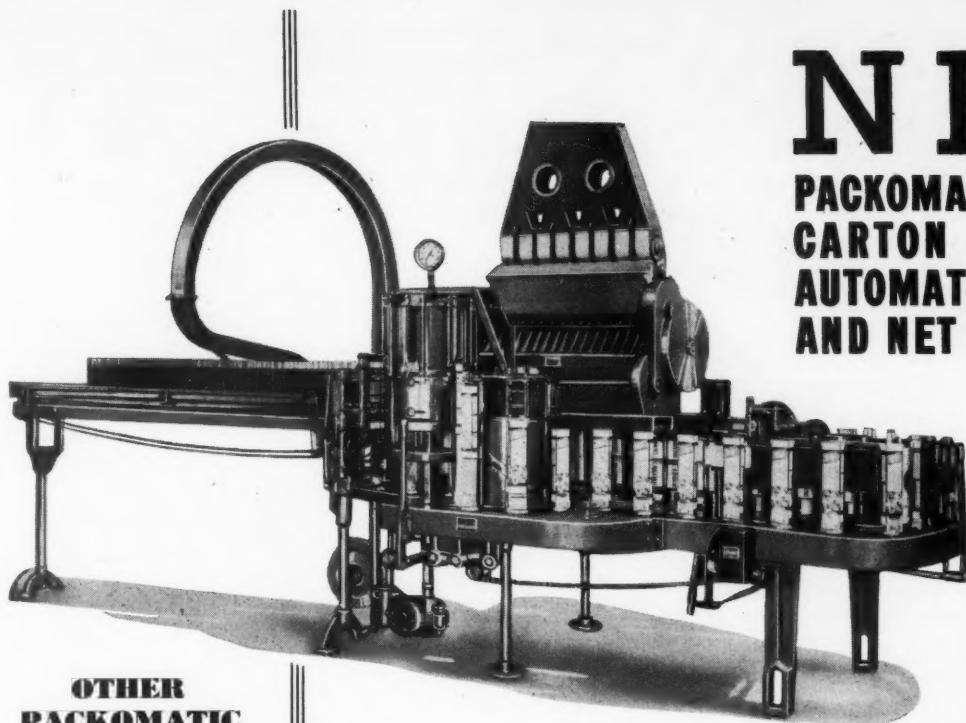
The greater efficiency of the poured liner in crown sealing may be due to its concave surface giving a somewhat larger area in contact with the bottle top. This is illustrated in Fig. 6, where it may be noted that the poured Noreseal liner fills the space between the crown and bottle top more completely than either sheet Noreseal or composition cork.

Tests on carbonated non-alcoholic beverages are shown in Table III. It is seen clearly from these data that Noreseal is fully equal to cork, even at pressures up to five volumes. The low values noted are still higher than necessary for good palatability and were single tests as seen from the average values. The flavors of these beverages were normal as attested by qualified tasters from each of the plants involved.

In bottling non-carbonated, perishable liquid foods, the product is sealed while still hot. On cooling, contraction of the liquid takes place, resulting in the creation of a vacuum within the bottle. This vacuum must be maintained for a reasonable period to avoid undue spoilage of the bottle contents. Grape juice was sealed with sheet Noreseal and with composition cork on a commercial machine of a large food processing plant. Some of the Noreseal liners were faced with a "full" spot, i.e., the liners were completely covered with vinyl-coated paper (Fig. 3). After cooling and

TABLE IV—NORESEAL RAW MATERIAL COSTS

Material	Cost per pound		Noreseal composition	Per pound		Per sq. foot, 0.085 in. thick		Per gross of liners		Estimated cost of Noreseal
	1943	1939		1943	1939	1943	1939	1943	1939	
	Dollars	Dollars		per cent	Dollars	Dollars	Dollars	Dollars	Dollars	
Glue	0.300	0.200	22.7	0.0681	0.0454	0.0180	0.0120	0.0152	0.0102	
Peanut hull flour	0.005	0.005	22.7	0.0011	0.0011	0.0003	0.0003	0.0003	0.0003	
Invert sugar	0.100	0.060	38.7	0.0387	0.0232	0.0103	0.0061	0.0087	0.0052	
Foaming agent	0.150	0.150	0.45	0.0009	0.0009	0.0002	0.0002	0.0002	0.0002	
Paraformaldehyde	0.230	0.340	0.45	0.0010	0.0015	0.0003	0.0004	0.0003	0.0003	
				0.1098	0.0721	0.0291	0.0190	0.0247	0.0162	



NEW!

**PACKOMATIC AUTOMATIC
CARTON SEALER WITH
AUTOMATIC CARTON FEED
AND NET WEIGHER**

**A HIGH SPEED
FULLY AUTOMATIC
OPERATING
MACHINE
YOU WILL WANT
TO KNOW ABOUT**

OTHER PACKOMATIC MACHINES

Shipping Case
Sealing Machines

Consecutive
Numbering
Machines

Carton Sealing
Machines

Auger Packers

Paper Can
Tube Gluers

Dating Devices

Paper Can
Tube Cutters

Paper Can
Shrinking Machines

Paper Can
Labeling Machines

Shipping Case
Printing Machines

Carton Making
Machines

Automatic
Volumetric Fillers

Paper Can Set-up
Conveyors

Paper Can Label
Dryers

Many special new features have been developed in Packomatic Carton Filling and Sealing Machines to meet fast moving War Food Production demands.

This machine is equipped with an automatic eight bucket scale, fills eight cartons simultaneously. Or it may be equipped with an Automatic Volumetric Filler for handling free flowing products of uniform specific gravity. Both bottom and top cartons sealed on the same unit. A compact floor space saving machine.

Brand new effective smooth running principles are used in operation of the Automatic Carton Feed synchronized with the Carton Sealer. No operator is required except to replenish carton supply magazine when necessary.

With the exception of carton feed, it is convertible for a wide range of carton sizes. Operates at speed of 60 or more per minute.

"The Packomatic Way" will show you an economical short cut to lower production costs. There is a Packomatic machine that will meet your requirements.

We can only supply equipment to essential industries who can furnish suitable priority. We are now accepting orders for postwar deliveries.

PACKOMATIC

PACKAGING MACHINERY

J. L. FERGUSON COMPANY, JOLIET, ILLINOIS

REPRESENTED IN ALL PRINCIPAL CITIES

storage at room temperature for 12 days, tests with a vacuum gage showed that the bottles had a vacuum of 14 in. to 17 in. After six months at room temperature, the following results were obtained: In bottles sealed with Noreseal having a standard spot, the vacuum was 14 in., 14 in., 15 in., 15 in.; with full spot Noreseal it was 15 in., 11 in., 15 in., 14 in.; with composition cork it was 12 in., 12 in. No off-flavors could be detected in any of the bottled grape juice tested. These results indicate that Noreseal is satisfactory for use in the hot bottling and storage of liquid foods.

Cost data

The cost of production is always a governing factor in the commercial development of any new material. This includes the cost of the raw material, power, steam, labor, interest on capital investment, depreciation and other fixed charges and sales promotional work. It is not possible to estimate these costs for Noreseal with any degree of accuracy, however, until sufficient operating data on a fair-sized pilot plant scale have been obtained. Such a pilot plant financed by a national beverage trade association is under construction in Peoria, Ill., at the present time. However, a comparison of the cost of the raw materials, based on present prices and on known prewar prices, is given in Table IV. It may be seen from these values that the raw material cost is considerably higher now than it was in the normal period. The value of 1.62 cents per gross of liners is based on re-use of the punching waste and a yield of 170 liners per square foot of sheet Noreseal. According to available information, the present price of composition cork is 4.17 cents per gross of liners.

It is thus apparent from a utilitarian standpoint that Noreseal is fully equal to composition cork for sealing bottled carbonated beverages, beer and foods. It has advantages over the natural product in that its composition and physical properties, such as density, resilience, hardness, color and shape may be varied and controlled within relatively wide limits. Furthermore, it can be used in present bottling machinery without any modification of the latter.

More detailed information will be found in mimeographed bulletin AIC-44, "Information on Noreseal—A New Cork Substitute," which may be obtained directly from the Northern Regional Research Laboratory, Peoria, 5, Ill.

Acknowledgment

The authors gratefully acknowledge the cooperation of the Crown Technical Committee of the U. S. Brewers' Assn. and of the following companies and their technical staffs in the development and commercial testing of Noreseal: Pabst Brewing Co., Peoria, Ill., and Milwaukee, Wis.; Jos. Schlitz Brewing Co., Milwaukee, Wis.; Anheuser-Busch, Inc., St. Louis, Mo.; Griesedieck Bros. Brewery Co., St. Louis, Mo.; Dad's Root Beer Bottling Co., Pepsi-Cola Bottling Co., Peoria Hires Bottling Co., Coca-Cola Bottling Co., and Dr. Pepper Bottling Co., Peoria, Ill.; Libby, McNeil and Libby, Blue Island, Ill.

The mention of these firms should not be construed as an endorsement of them or their products by the U. S. Department of Agriculture.

Functional design—

(Continued from page 83) 10% heavier than plain steels. This also calls for increased strength in the carton material.

Ample protection against such injury is provided for all

classes of tools by the construction of the carton. It is made of an extra heavy cardboard, treated to improve its resistance to oil, water and water-vapor transmission. The lid is full length so that when it is placed over the lower half of the carton there are double cushioning sides next to the cutting edges of the tools. Both the lid and the lower portion of the carton are further reinforced with metallic stapling on vertical edges. In this manner, the maximum strengthening effect is obtained from the very small amount of metal allocated during wartime for such purposes.

During the manufacturing process, both halves of the carton are double-creased at the folds. Then, when the material is bent to form the box, a triangulated edge is left inside each half of the carton. This triangulation prevents the edges from cracking, both while the container is being made and while it is in use.

This container will withstand all ordinary shocks attendant to accidental dropping from a height of several feet to concrete flooring. Somewhat more severe shocks may crumple the ends of the carton but will not destroy the usefulness of the container nor usually chip the teeth of the enclosed cutter. The carton has also proved to have a service life at least as long as the average gear cutter, even though used for carrying the cutter back and forth from the machine to the tool room for repeated sharpenings.

While this container does the job for which it was designed, its appearance and construction are not such as to tempt a worker to take it home or to use it in the shop for oil or water as has been the case with metal containers.

For instant and positive identification of tools in the stock room, etc., the containers are lithographed in the company colors of blue and yellow. The trademark appears on both the top and sides of the taller boxes; on the top only of the thinner containers. The boxes for each class of tool have a stylized representation of the contained cutting tool for further identification by workmen. A white panel has been provided on the side of the carton in which the customer can write or stamp his own tool numbers, names, dates or any information concerning the contents of the package he deems pertinent.

The cartons vary in size to correspond with the sizes of the gear-cutting tools and each line of tools has its own particular size of box. Before packaging the cutters for shipment, the company dips the tools in a non-hardening, wax-like material which spreads out evenly over the entire surface area of the cutter as a protection against corrosion and rust. Each tool is then wrapped in heavy waxed paper, or—for shipment to areas where corrosion from salt air or sea water is a problem—in a material which is actually a heavy sheet of wax reinforced with fabric. Usually, the protected tool is then wrapped up in corrugated board.

Although the various sizes of cutters fit securely in their cartons, the box's square construction permits ready removal of the tool without injury to fingers, due to the spaces left at the corners of the box by the round cutters.

Two small sections cut out of the lid's lower edge provide a good gripping place for the worker's thumb and finger when he is removing the upper half of the carton. The amount of clearance between the lid and the lower half has been adjusted to a point where the cover can be removed with little effort. The fit is neither "sloppy" nor so tight as to cause the suction action which makes removal of a tightly fitting carton cover difficult. The square boxes permit easy stacking and also require the minimum amount of space when in storage.

Credit: Boxes, National Metal Edge Box Co., Philadelphia.

THE FIRST RULE FOR SUCCESSFUL SALADS



In the preparation of a tasty, appetizing salad, one of the primary requirements is a good dressing . . . which is why Miracle Whip Salad Dressing, made by Kraft, is so popular with salad lovers from coast to coast. This healthful, wholesome food

product is manufactured by Kraft Cheese Company, Chicago, Ill., packed in sturdy glass containers and securely sealed with Crown Screw Caps . . . the cap which gives 50 to 100% more sealing pressure because of the patented CCS Deep Hook Thread.

CROWN CORK & SEAL COMPANY

Closure Division

Baltimore-3, Md.

WORLD'S LARGEST MAKERS OF METAL CLOSURES

CROWN CLOSURES

Crown's Wartime Policy: To supply closures, containers and services for packaging foods, beverages, chemicals, etc., needed by civilians and the armed forces. To build an ever-increasing volume of vitally needed weapons of war for our fighting men.

Postwar trends in coating

(Continued from page 115) well apply in this case.

Synthetics.—Into this category fall the polyvinyl alcohols, methyl cellulose and a host of other potentialities. It is believed that some of these have already been successfully applied to the adhesives job in paper coating, but the development is so new and the economic soundness of the application so poorly understood that little of a definite nature can be predicted at this time. It seems reasonable, however, to suppose that the synthetics bear watching.

Starches.—This Cinderella of the coating business, with the advent of war, became almost overnight a glamorous possibility. It is probable that fully 80% of the chemical development work in coating adhesives has been devoted to the application of starches as alternative materials for casein. To list all of the possible forms of starch which have been investigated in this connection would require many pages. However, at present, it would seem that the converted forms of starch have most readily lent themselves to production of commercially coated sheets.

One of the most difficult problems in the use of casein as a clay coating adhesive is involved with its tendency to produce pin holes in the coated sheet and much competent technical labor has been expended toward the elimination of this tendency. Despite this, complete success has not been attained and this peculiarity of casein has in itself led to a growing interest in starch adhesives for the industry. Unlike casein, most coating mixes containing starch as an adhesive show little or no tendency to foam and the possibility of manipulation of starch adhesives into a wide range of properties are tremendous.

For example, in the case of casein, it has been common to associate a rise in the viscosity of the coating mix with a rise in the percentage of casein carried in that formulation. This is generally true also of starches unless they are manipulated with some new tools of the chemist and it is now known that viscosities can be controlled in starch solutions almost at will without regard to the per cent solids of the starch adhesives contained in the formulation. In addition to this, other materials may be added to the starch adhesives to increase the thixotropy or dilatancy of a starch coating mix. Certain dispersing agents, when added to starch coating materials in almost unbelievably small quantities, will produce striking changes in their brushing characteristics and the properties of the resultant finished coated sheet.

Under an economy not dominated by the pressing needs of war, this country has always been more than adequately supplied with starch foods and it is, therefore, reasonable to suppose that starch is currently the most interesting possibility as an adhesive—with the possible exception of the soybean proteins. As more is known of the technique of handling starch-containing coating materials, it is possible that starch may become the preferred adhesive for coating, not merely because of its probable economic advantages, but perhaps on account of its effect on quality.

Until very recently, no practical way of making starch water-resistant was known. With the recent advent of some of the melamine and other type synthetic resins, it is now possible to formulate coating mixtures with starches as adhesives which possess water-resistance in as great a degree as that obtained by any other coating adhesive.

Improvements in the knowledge surrounding the lithographic process of printing have indicated that even in this field, starch can be and is being used successfully today.

This is even true of starch coatings which are not even superficially water-resistant.

Pigments and Colors.—It is highly probable that kaolin (commonly called china clay) will continue to represent 80 or 90% of the pigment components in coating mixes. Its many desirable physical properties, its relatively low cost, and its many superior printing properties make this seem almost a certainty. It is difficult to see where an alternative pigment is likely to replace clay in its current position.

Carbonates.—Just prior to the war, many interesting processed calcium carbonates were being offered by the producers of such pigments. Diversion of these facilities due to war halted many of the developments in this field and we can expect that resumption of peacetime business conditions will make many of these desirable materials again available. This almost certainly will result in increasing uses for calcium carbonates within the coating industry.

Titanium Dioxide.—Titanium dioxide, as we knew it before the war, was not the whitest available pigment for coating purposes, but undeniably possessed greater opacity than any other pigment then available. When a maximum of hiding power is needed with a minimum of film thickness, we know of no pigment in the coating field which will produce this desirable result in such great measure. If the development of machine coating processes involving transfer rolls continues to expand, it is almost certain that increasingly greater percentages of titanium dioxide will be used in the machine coating mills. Titanium dioxide will permit the achievement of a maximum of brightness in the finished coated sheet with a minimum thickness of film applied to the body stock. This should result in less effect from the tendency of the roll coating process to produce striations, and it seems likely that this trend will become more apparent in the postwar period.

Other Pigments.—There are many other pigments which have been used to a greater or lesser extent in the coating industry in the past and we can expect future coating developments to utilize more of these in cases where specific sheet qualities are wanted. Among these are blanc fixe, alumina hydrate, and, of course, a host of other white and colored pigments of various types.

Postwar printing developments

Practically all of the foregoing discussion has been colored by the conditions and processes surrounding the printing industry as we knew it before the war.

It does not seem likely that there will be development of printing processes which will not fall into the three basic categories of letter-press, planographic or intaglio printing. At the onset of war, however, tremendously interesting developments in the chemistry of printing inks were already underway and, despite the restrictions of war, have continued in commercial use in some cases during the war period. We may expect many changes in our conceptions of how inks may be applied to paper and how they may be placed in such a condition of dryness as to permit handling without damage to the product.

Most of the printing inks hitherto available have consisted of pigments ground in linseed oil, or a combination of linseed oils with mineral oils and synthetic resins or natural rosins. Most of the inks used in letter-press printing were of this class. Such inks "dry" in three ways: (1) by penetration of vehicle into paper, (2) by oxidation, (3) by polymerization. In the ordinary letter-press or lithographic printing process, only the first of these is important in its effect on the rate of

FOR BETTER PACKAGING— AND CONTAINER SALVAGE, TOO



A tiny Bostitch staple
... linking war and
civilian production

INVASION and war products *must* have right-of-way when and wherever needed... but Industry *must* be ready, when the signal changes, for a quick crossing or for open traffic... in order to carry on at full time and full speed... to furnish real jobs for those released from the services and from war plants. This requires planning — now!

If your planning involves fastening... consider Bostitching... whether your materials are plastics... metals... cloth... wood... paper... leather... or whether you are now using riveting... welding... gluing... nailing... tying. Bostitching may speed up your production... and cut your costs... as it has done in thousands of war and peace-time applications.

Investigate Bostitching... especially the new Bostitch

"When-Available" Plan

which gives priority to your future needs... helps you to prepare and us to plan... to meet opportunities quickly as they arise... without interfering with war work. Write for "W-A" folder.

Bostitch (Boston Wire Stitcher Company), 53 Duane Street, East Greenwich, R. I. (Bostitch-Canada, Ltd., Montreal).

Below: One of 800 Bostitch stapling devices. Bostitch automobile-aircraft stitcher...stitches aluminum, steel, plastics, together or to other materials... 300 stitches per minute.

BOSTITCH

*AND FASTER
fastens it better, with wire*

ALL TYPES OF STAPLES APPLIED BY MACHINES
ALL TYPES OF MACHINES FOR APPLYING STAPLES



● Packaging engineers have utilized Bostitching for many new protective packagings in this war. Among these are the packaging of huge plastic domes for noses of planes and the construction of forms over which gas masks are fastened for shipment. Special packaging for auxiliary gas tanks for planes is another development.

One of the greatest advances over a previous method of shipment is in the packaging of X-ray tubes. Whereas the difficulties of shipping these delicate tubes were so great that in World War I each tube was assigned a personal "protector" who actually carried it from the United States to France, a package has now been developed, using Bostitch fastening, which enables the tubes to be safely shipped like any other "fragile" merchandise.

The long list of munitions packages includes containers for small and medium calibre shells, data cases for bombers, grommets for protecting rotating bands on large calibre shells, and hundreds of packages adopted from the industrial field where Bostitching has long had acceptance.

Now—with containers running short—another Bostitch advantage comes to the fore—salvage and re-use.

Bostitch bottom-sealing staples, and Bostitch Autoclech top-sealing staples can be quickly and easily removed with a screw driver, pliers, or a Bostitch staple remover with virtually no damage to the container itself. When re-used, and resealed by this method, the container retains its original strength and security.

When containers are damaged in transit, patches of corrugated board can be Bostitched to restore much of the original usefulness. One user reports that containers can be used as many as fifteen times by sealing and patching with Bostitch.

The use of the Bostitch method of stapling tops and bottoms of corrugated containers does not require the installation of large or expensive equipment. Bottoms may be stapled with foot-or-motor-operated staplers or—where large production is involved—with power driven wire stitchers. Tops may be sealed with the remarkable Bostitch Autoclech, which applies and closes the staple entirely from the outside of the container. This light, portable hand machine can be used anywhere. It can also be employed for sealing the bottom flaps.

These machines illustrate the flexibility of the Bostitch line. There are models to suit not only the various types of work, but the nature and size of the production, as well.

To give the prospective user every possible benefit, Bostitch equipment is sold only by experienced field men who specialize exclusively in this line and have a broad familiarity with packaging and other fastening requirements.

production and the prevention of spoilage. Since the rate of penetration of the ink's vehicle into paper depends not only upon the formulation of the ink, but also upon the oil absorption characteristics of the paper, the demands made upon the paper in this respect have been rather exacting.

Some of the newer ink formulations, many of them patented, rely for the drying effect on entirely different principles and we cannot, therefore, ignore the implications contained in some of these newer ink developments.

Solvent-heat-setting inks

For some ten years past, inks formulated upon a base of synthetic resin dispersed in a solvent having a definite initial evaporation temperature together with a definite final evaporation end point, were available for certain printing processes. This type of ink is applied to the paper on conventional letter-press equipment and the sheet is heated to a certain definite temperature—boiling or burning off the solvent, at which juncture the printed image on the sheet of paper becomes, for all practical purposes, dry. Chief disadvantage involved in this process was the necessity for applying high heats to the paper which, in some cases, resulted in shrinkage, misregister and static. It seems likely, however, that postwar work along the same line may result in eliminating these difficulties.

Catalyst-activated inks

Almost on the eve of the present war, one firm offered a new type of ink containing a synthetic resin vehicle which depended upon its moisture content for its physical state. In the presence of ordinary pressroom temperatures and humidities, the ink maintained its fluidity and workability. As soon as the ink was applied to the sheet, application of a high humidity through the agency of a steam shower increased, the moisture content within the printed film and almost instantly the film became solid and, to all practical intents and purposes, dry.

Critical materials involved in the manufacture of this ink have limited the distribution of it and had it not been for the war, it might already have been in wide general use. With the removal of the restrictions imposed by the war, we can expect to see many new applications for this type of printing ink.

Thermoplastic inks

Just before the war, experiments were being conducted with thermoplastic inks which assumed a solid state at temperatures below 140 deg. F. Such inks were in a solid brick-like form, but upon being raised to temperatures well above 200 deg., became fluid and workable. Kept in the fountain and in the press at these temperatures, they were applied to the paper and the cooling effect of the paper immediately caused the ink to solidify upon the surface with practically no penetration whatsoever.

In most cases, the equipment involved in applying this type of printing required special provision for maintaining temperatures at the proper levels throughout the press mechanisms and these high temperatures imposed mechanical difficulties which will doubtless be eliminated as time goes on. Much of the development of war material of a mechanical nature involves similar problems and it is believed that application of this advanced technology to these printing problems at the war's close will result in greatly increased progress in this direction.

Conclusion

With all of these intricate technical possibilities spread before us in panorama—a panorama lighted by economic considerations which fluctuate as to intensity and color with each geographical market territory, and with each passing moment—it is apparent that there can be no categorical statement that this or that process will supplant this or that other process. It is perfectly safe to predict, however, that sweeping changes of great economic importance are in the offing. As much knowledge as we can gain of these fundamental trends seems pitifully meager when looked upon as a basis for long-term decisions affecting the future of one particular business. Yet, unfortunately, a deep study of these technical fundamentals seems to be the only general method toward intelligent decisions to shape the economic progress of the individual concern.

At its economic best, the final decision should not be that of manager or technician alone, but rather the result of intelligent cooperative teamwork between these specialists. Management alone, however, can provide the ground on which this essential teamwork can freely and effectively take place.

In the eye—

(Continued from page 89) about the stylishness of their packages. They didn't need to be if their products sold anyway. They didn't need to, that is, until other people with nimbler brains produced ideas which the consumers liked better. If, in some instances inherent quality had to be sacrificed for appearance it didn't always seem to matter very much.

Well, that was before the war. Then, bit by bit, we were reduced to brass tacks. And pretty much everybody was in the same boat. But to tell you the truth, if there is ever anything good to be gained by war, this forced new austerity in packaging of the moment is some of it.

In the postwar future lies tremendous scope for new ideas and new materials, if we only set our minds straight now and resolve not to go haywire again and lose basic consideration—among them beauty—in the race for decoration and ideas tailor-made to taste.

Perhaps we can think of beauty and appeal in a package as we think of a woman's face. No matter how many layers of lipstick and rouge and powder she may put on it, if her basic bone structure is not beautiful, the grease won't help. An ugly woman may become arresting looking and attractive. The decoration, cleverly used, can cover up and make life actually more enjoyable and safer as all camouflage does. Still, she will not be beautiful in the basic and eternal sense of the word. The same thing is true of architecture or furniture, or anything if its basic structure is wrong. We can dress it up and make it do and we can even make it good looking. While the skill required for all of that is considerable, it does not match the grandeur of basic creation.

At that, basic beauty, in some way, may not be chic or in the fashion of the moment. There is nothing chic or fashionable about our plug gauge. It doesn't have to be. But chic and fashion are demanded by the more ephemeral—and perhaps less useful—kinds of merchandise. Chic and fashion should lift the weight of daily drudgery from our shoulders. If we look at them from that point of view, they accomplish an important task indeed.

When it comes to wartime packages, we had to give up a

KODAK PACKAGING LABORATORY

now in active operation



*Y*OUR representatives are invited to spend a few days in this practical workshop, brushing up on basic fabricating operations with the assistance of Kodak technicians.

Prepare now for the day when Eastman Acetate Sheet will be available for civilian use. At present, only essential wartime requirements can be filled. In the meantime the laboratory is open, and you're welcome to use its facilities. Become familiar now with the practical applications of Eastman Acetate Sheet. Chemical Sales Division, Eastman Kodak Company, Rochester 4, N. Y.

EASTMAN ACETATE SHEET

**Clear Transparent—Matte
Transparent—Colored Trans-
lucent.** It can be scored,
folded, pleated, fluted,
molded, drawn . . . takes
printing inks without wrin-
kling . . . can be sewed,
crimped, stapled . . . cements
with an unyielding bond.
Made in sheets and rolls.

Eastman Acetate Sheet

**ATTRACTS
PROTECTS
SELLS**

good deal of chic and fashion. In that sense today's packages are incomplete. But that does not mean that they are necessarily ugly. Basic beauty was not mislaid if we had it to begin with. We have it today in the sweeping lines of a bomber, in the bow of a man o' war. We have it in gears and guns and gauges and all we need to do is to re-apply it to the less formidable items of existence when peace is back again.

Perhaps our wartime reduction to essentials is teaching us a lesson for future days. Perhaps we are learning that function of itself is a thing that breeds beauty. Perhaps we are learning that decoration, or sometimes, trimming, is right only when it means an extension of basically good design. The trends, as we begin to feel them, are in many ways, very much toward decoration, we believe. We are tired today of the naked austerity of steel and ever so many people all over the world are waiting for a lighter touch to things.

It will be a more mechanized world when this war is over, but that in itself will mean a greater need for more livable things than those which are purely functional. I don't mean that an icebox should have roses painted on its front door, or that a coffee can must have a picture of a movie star grinning on its cover. What I do mean is that the outside of an icebox does not have to look as cold as the inside ought to be, if it is a part of the living scheme of something so much used as a kitchen. And that goes for the coffee can too.

On the other hand, when it comes to designing and packaging the more luxurious kinds of things such as perfumes and cosmetics, and items for home decoration, I don't mean that only those will sell which are completely covered with gold braids and tassels of silk and velvet. What I do mean is that a jar or bottle has to sit firmly on a table and that a stopper must work, but that when these basic factors have been fully considered, there is no reason on earth why construction and shape and color can't reflect great beauty.

Decoration is an element which taste adds to form. More power to decoration. To put it all in a nutshell, people like you, Mr. Editor, who are the theorists and analysts and the buyers and merchandisers, and people like me, who are the designers and engineers and dreamers, must work together very closely and make very sure that we produce not just elaborately decorated containers but that we create undebatable beauty which is not just in the eye of the beholder.

And so, Mr. Editor, thanks for letting me say all this, and many wishes for better packages and packages that will ever be more beautiful.

Edible containers

(Continued from page 71) translate its die pattern into a cam formula to determine the 720 individual measurements on the circumference of each steel cam. Allowable error in the finished dies must not exceed one $\frac{1}{1000}$ in.

The production capacity of a rotary-die machine may be as high as 400,000 per day or as low as 60,000. Production depends on the size of the capsule. The larger the capsule, the larger the die pockets and the fewer pockets can be cut across the die rollers. The hardness or softness of the finished capsule is governed by the quantity of glycerine added to the gelatin. The rotary-die process makes possible the encapsulation of pastes and liquids of any consistency sufficient to bulge the gelatin sheets into the die pockets. The one enemy is water, since gelatin is soluble in water. That is why the product research laboratory hopes in the near future to continue its experiments with plastic films, which would give a

much broader scope to the machines that are used to form these containers.

Since the war, gelatin capsules for military use have been used as substitutes for metal and plastic tubes. Certain emergency rations have also contained gelatine capsules for concentrated foods. The last is of interest because a gelatin container, in itself, has food value.

Gelatin containers of this type may be made as small as 1½ minims (not much over a drop) up to one ounce size. Larger than one ounce has not seemed practicable. Labels may be applied. Those shown in the illustrations on these pages are decalcomania.

Color may be added to the gelatin in practically any shade desirable. Food dyes are used for this purpose. A distinctive color provides immediate identification and adds to it the eye-appeal qualities of a precious jewel or a rare piece of porcelain.

The gelatin container may be made in almost any shape—oval, round, elongated. It may even have a threaded plastic closure, if intended for re-use. The gelatin shell will filter out light rays that might affect contents.

In 1933 Gelatin Products produced about 7,000,000 capsules. Today the company has facilities for more than twice that many in a day. Still they cannot keep up with demand due to supplying the tremendous requirements for Army and Navy items as well as essential civilian drug business. In Canada, the Canadian plant provides the Canadian Army with its entire requirements of prophylactic tubes. They also produce lacrimatory capsules for the testing of gas masks.

Due to these demands, the company has had very little time to continue product research in other fields, but as soon as the war is over the packager in many fields besides the initial pharmaceutical industry will find these unique small containers adaptable to innumerable products. They offer advantages of high speed production, accuracy of automatic filling, excellent protection of contents, sanitation and low cost. Variety of size and shape and the use of color play an important part in eye-appeal merchandising. Convenience for single application or for re-use add to their over-all attractiveness.

Labels that carry the flag

(Continued from page 74) the appearance in United States markets of any package incorporating the flag emblem. When, because of shifting war needs, a shipment of food, for instance, had to be diverted to domestic channels, it was illegal in some 38 states to offer such food for sale if it bore the Lend-Lease flag label. The proclamation, although void six months after the emergency ends, has now liquidated this difficulty so that when changes in the program of supply occur, products intended for overseas shipments and labeled accordingly may be distributed in American markets.

Appearance of the flag label is obligatory on all overseas Lend-Lease shipments. When it is possible for the WFA to determine far enough ahead, foods intended for lend-lease, the flag label is included in the WFA packaging design. Although it is not required when direct cash purchases are involved, most manufacturers agree with WFA and Lend-Lease that it is good business and sound postwar investment to include it in some fashion in their packaging or labeling.

MATERIALS

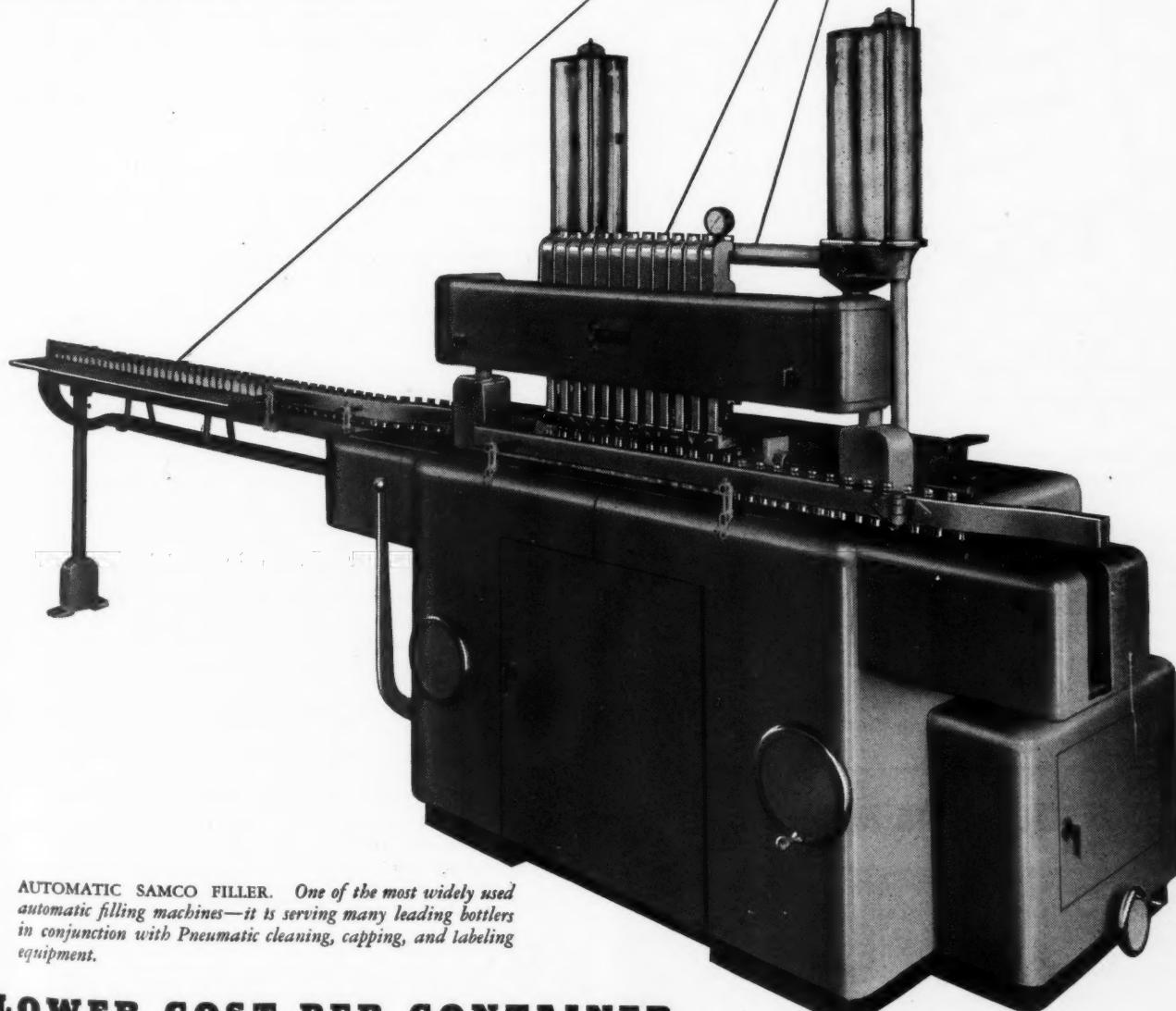
EVERY PART MUST BE PEDIGREED FOR DEPENDABLE BOTTLING

NONE of the many different kinds of metals used for different parts of Pneumatic Automatic Bottling Machines can be simply "good enough." It must be the best that the world market and modern science afford. Every part must be machined to give perfect service not only today but for years to come.

There can be no "weak links" in Pneumatic Bottling and Packaging Machines. The working slogan of Pneumatic—*lower cost per container*—will not permit it. Pneumatic Machines must, and do, deliver the goods.

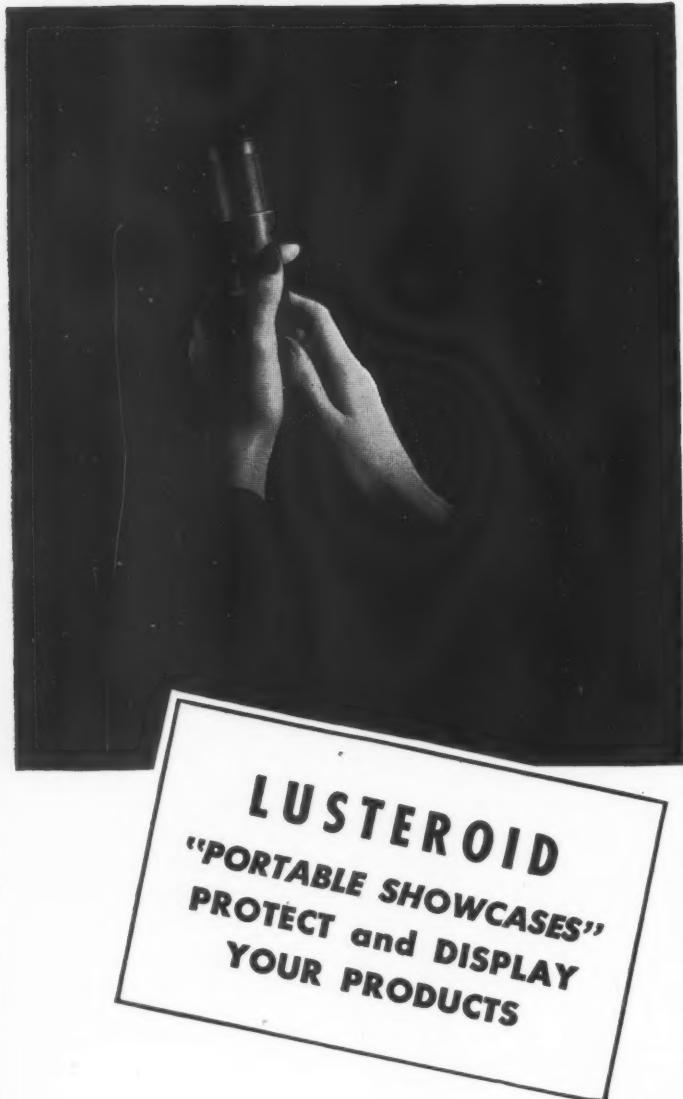
PNEUMATIC SCALE CORPORATION, LTD., 82 Newport Avenue,
North Quincy 71, Mass. • New York • San Francisco • Chicago
Los Angeles

PNEUMATIC PACKAGING & BOTTLING MACHINERY



AUTOMATIC SAMCO FILLER. One of the most widely used automatic filling machines—it is serving many leading bottlers in conjunction with Pneumatic cleaning, capping, and labeling equipment.

LOWER COST PER CONTAINER



LUSTEROID "PORTABLE SHOWCASES" PROTECT and DISPLAY YOUR PRODUCTS

For smartness, safety, savings and sales, you can rely on colorful, crystal-clear LUSTEROID vials and tubes to fill your post-war packaging needs.

These "portable showcases" reflect the quality of your product while protecting it from factory to consumer.

Consider these LUSTEROID advantages. Amazing light weight. Strong, rigid, unbreakable. No protective partitioning or special packing needed. No labels to affix. Lower shipping and handling cost. Choice of all colors—clear or opaque. Diameters from $\frac{1}{4}$ " to $1\frac{1}{4}$ ". Lengths up to 6". Cork, slip-on or screw-cap closures.

Write for complete facts today.

LUSTEROID CONTAINER CO., INC.

Formerly Lusteroid Division of Sillcocks-Miller Company

Office and Factory
10 W. PARKER AVENUE, MAPLEWOOD, N. J.
MAILING ADDRESS: SOUTH ORANGE, N. J.

Equipment and materials

(Continued from page 130) sequent stretch. It is available at the present time for essential industry only.

WATERPROOF ENVELOPE FOR MOTORS

The Angier Sales Corp., Framingham, Mass., announces that it has developed for the Chrysler Corp. of Canada a new method of waterproof packaging of engines and other motor parts for export, making use of a material designated as A-19 Brownskin Grizzlybear. This material consists of two sheets of kraft, one infused with a special asphaltic compound, bonded together with a synthetic resinous preparation. The paper is creped, for stretch, and in addition to being waterproof is said to be extremely tough and flexible for wrapping odd-shaped articles with projecting parts. Engines and parts are sealed in an envelope of this material, after rustproofing, and packed in wood cases.

POLAR RUST-PREVENTIVE COMPOUNDS

The rust-preventive Tectyl compounds are now produced by the Valvoline Oil Co., Cincinnati. Applied by spraying, dipping or brushing, various Tectyl formulations are said to have the qualities of (1) cleaning, lubricating and corrosion-proofing metals; (2) removing water from contact with metal to prevent corrosion; (3) preserving metal surfaces of parts or machines stored outdoors; (4) rustproofing and lubricating bearings, engines, etc. The Tectyl liquids are polar compounds—i.e., having a high affinity for metal. They have two major elements; a solvent which evaporates and the active polar compound which remains as a protective coating or film. They are transparent and soluble in kerosene, carbon tetrachloride and ordinary lubricating oils.

Plants and people

(Continued from page 132) Monsanto president. Mr. Williams succeeds John C. Brooks who died recently. R. R. Cole, vice-president of the company has announced that E. A. O'Neal, Jr., will take over the duties of Mr. Williams.

The Detroit Wax Paper Co., has announced the purchase of the Detroit plant of the Consolidated Paper Co. The purchase is to provide for the expansion of the company's plastics division.

David B. Hills has announced his resignation from the Northam Warren Corp., Stamford, Conn., to open his own workshop for the creation, development and manufacture of selling aids, including three-dimensional counter displays, lithographed displays, packages and printed advertising material. His offices will be located at 274 Madison Ave., New York.

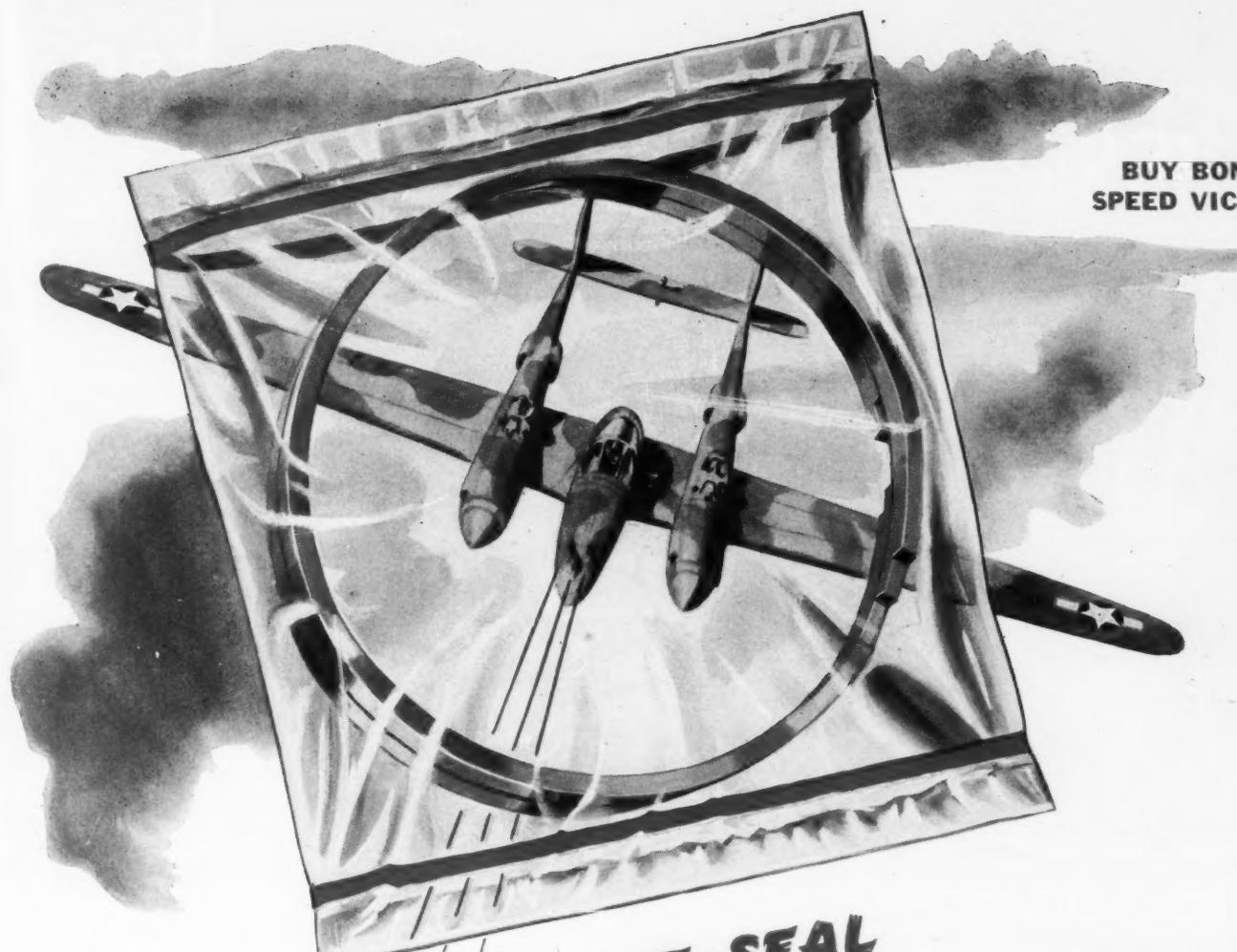
J. K. Louden has been appointed production manager of the glass and closure plants of the Armstrong Cork Co. and William E. Cash has been selected for the position of assistant manager of the glass and closure division-industrial division creative section of the advertising and promotion department.

Harold Brayman has been appointed director of the public relations department of E. I. du Pont de Nemours & Co., Inc., to succeed the late Theodore G. Joslin, who died last April 12.

The Board of Directors of the New Jersey Machine Corp. elected a new president, George von Hofe, at their last meeting, to succeed Carl H. Lambelet who resigned as of June 1. Mr. Lambelet's new connections will be announced in the near future.

Guy Robinson, chief auditor of the Heekin Can Co., Cincinnati, died early in April. Mr. Robinson was well known in the canning and packing industry from coast to coast, not only in the packer can field, but in the lithographed can industry as well.

BUY BONDS
SPEED VICTORY



✓TITE-SEAL IT'S "IN THE BAG" FOR OUR BOYS

Piston rings in TITE-SEAL Waterproof Cellophane Bags reach fighting fronts in prime condition. So do thousands of other military parts—bolts, bearings, gauges, etc.—for which TITE-SEAL Bags are *approved* Grade A, type III, wrapping material in Packaging Methods 1 and 1A.

Availability is only one reason for TITE-SEAL popularity; visibility is another. One look identifies the contents, sealed against rust and corrosion. Recommended by Forest Products Laboratory.

The unmatched advantages of TITE-SEAL Bags proved in war, will protect in peace, parts and articles for shipment and stock.

LOXTITE PARTITIONS • "TITE-SEAL" CELLOPHANE
BAGS AND LINERS • MULTI-COLOR PRINTED CELLO-
PHANE AND GLASSINE IN SHEETS OR ROLLS
AND NOW—METHOD II PACKAGING MATERIAL

Patents Applied For



TRAVER CORPORATION
Dept. MP 6, 358 West Ontario St., CHICAGO 10, ILLINOIS

it's



a sales winner too*

We are proud to have contributed to the phenomenal success of the John Hudson Moore Inc., SPORTSMAN series of men's toiletries.

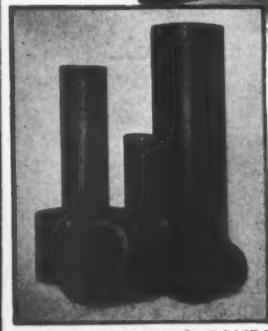
The rich coloring of hard oil enamels was enhanced by the novel idea of printing on both sides of the container, revealing the background through the contents of the bottle and retaining all of the character of the original oil paintings.

This design was printed in eleven colors by:

Specialist in "On the Package" Printing
CREATIVE PRINTMAKERS GROUP
14 W. 17 St., New York 11, N.Y. Chelsea 3-6803-45

* WINNER OF MAJOR AWARD IN THE 1942 ALL-AMERICAN PACKAGING COMPETITION

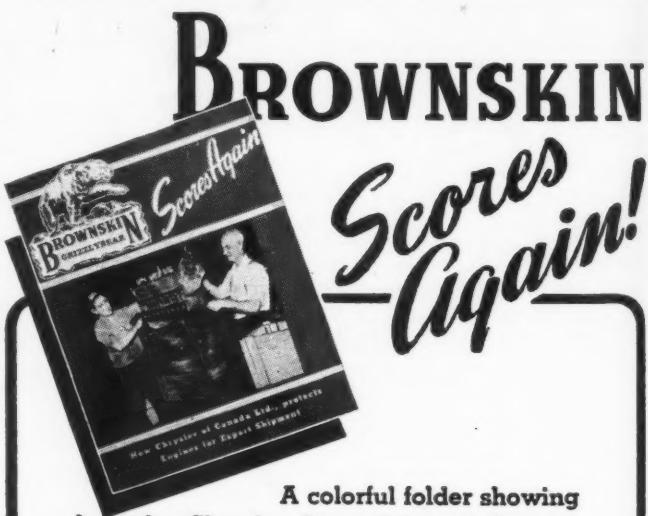
CAMACHINE High Speed Tube Cutter



CAMACHINE High Speed Tube Cutter

This gang cutter cuts spiral tubes into proper lengths to manufacture containers for shells, ammunition, paints, soap powders, etc. Write for interesting details.

CAMERON MACHINE COMPANY, 61 Poplar Street, Brooklyn 2, N.Y.
MID-WEST OFFICE, 111 W. MONROE ST., CHICAGO 3, ILL.



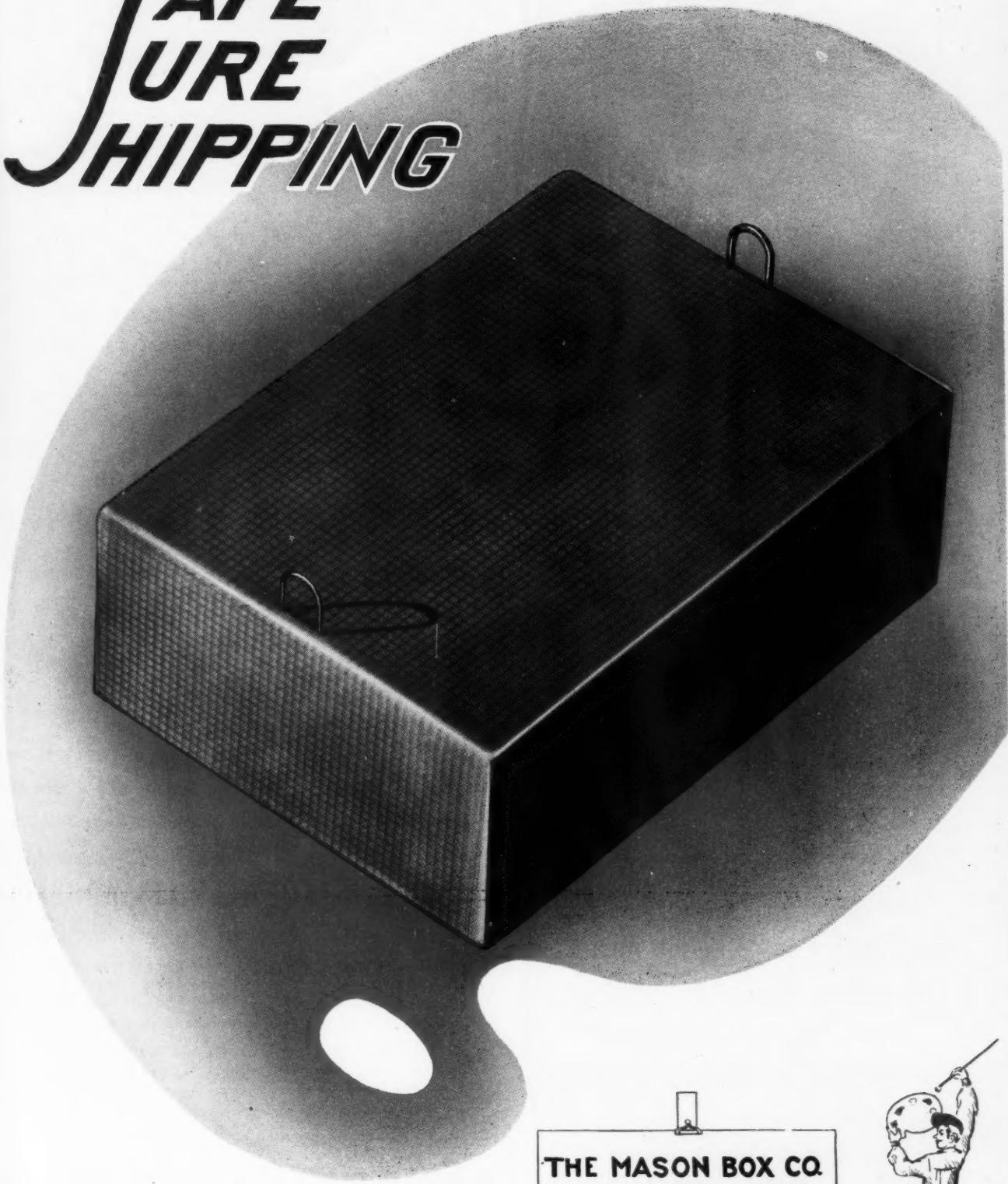
A colorful folder showing how the Chrysler Corporation of Canada Ltd., protects their engines for export shipping has now been prepared. It tells the story of their use of A-19 Brownskin Grizzlybear to lick the problem of corrosion on overseas shipments.

Write today for your free copy of Folder BMP

ANGIER CORPORATION

CORROSION PREVENTIVE AND WATERPROOF PAPERS
FRAMINGHAM, MASSACHUSETTS

*SAFE
SURE
SHIPPING*



THE MASON BOX CO.
ATTLEBORO FALLS, MASS.
175 5TH. AVE. NEW YORK



**When it's
HERE..**



**It can't be
THERE!**



There are still thousands of people not yet convinced of the seriousness of the paper shortage! Waste paper must be turned in . . . talk it, preach it, shout it!

MAG-SIM BAR
Paper Company

OTSEGO, MICHIGAN PHONE KALAMAZOO 5500
CHICAGO, 228 N. LaSALLE PHONE CENTRAL 1798



*Quality Packaging
that sells your product*

★ ★ ★

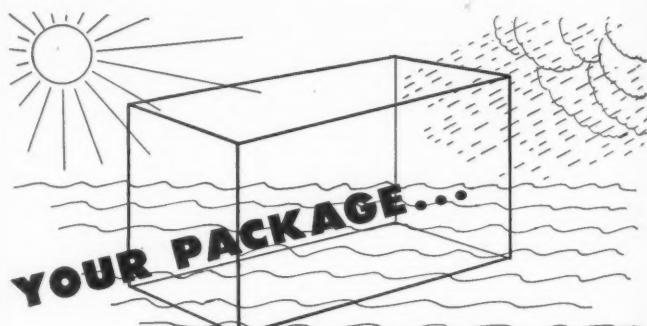
**STECHER-TRAUNG
LITHOGRAPH CORPORATION**

ROCHESTER 7, N.Y. SAN FRANCISCO 11, CALIF.
Offices in Principal Cities

Labels • Box Wraps

packets • cartons • folding boxes

merchandise envelopes and cards



... IS AS STRONG AS ITS ADHESIVE

★ You who supply food, drugs, parts, chemicals—or other packaged materials—to the Armed Forces or to Lend Lease, may find one of NATIONAL CASEIN'S approved Waterproof Adhesives worth consideration and test.

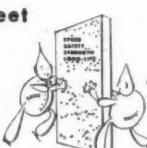
Uniformly high in quality, readily available, backed by 30 years of service to industry, NATIONAL CASEIN'S Urea Formaldehyde is Laboratory Approved as a water-resistant adhesive for sealing fibreboard boxes

NATIONAL CASEIN SALES

609-619 West 80th Street

Chicago 20, Illinois

SUBMIT YOUR
ADHESIVE PROBLEMS
WITHOUT OBLIGATION



ALL TYPES CASEIN—
HOT OR COLD
RESIN GLUES

A Powder Filler FOR YOUR WARTIME NEEDS



This modern stream-lined Consolidated Powder Filler meets every requirement of wartime packaging. It is designed for high-speed filling of spice, powdered and pulverized food, drug and insecticide containers.

The Consolidated is a fully automatic machine and handles the new fiber cans just as efficiently as it does tin containers. It handles any size from 2 oz. to 40 oz. and fills fifty 2-oz. containers or twenty 16-oz. containers per minute.

A screw auger carries the material from the hopper to the can and measures it accurately at the same time. The unit handles any non-free-flowing material and the entire operation is practically dust-free.

If you have a packaging problem, let a Consolidated Packaging engineer go over it with you.

**CONSOLIDATED
PACKAGING MACHINERY
CORPORATION**

1400 WEST AVENUE, BUFFALO, N. Y.

FREE!

SEND COUPON—
SEE HOW YOU CAN SAVE
ON CARTON SEALING—

**SAVE LABOR OF
2 PERSONS**

- General Superintendent, Prominent Manufacturer

**CUT LABOR AND
MATERIAL COST 25%**

- A Midwest Canning Company

**OPERATORS PREFER
SILVERSTITCHER**

- A Western Paper Manufacturer

**INCREASE SHIPPING
OUTPUT 50%**

- Manufacturer of Stencil Machines

**RESULTS WERE
ASTOUNDING!**

- A Southern Candy Manufacturer

**SEND COUPON—
SEE WHY!**

ACME STEEL COMPANY
2843 Archer Ave., Chicago 8, Ill.
Please send free folder on How to Save on Carton Sealing.

Name _____

Company _____

Address _____

City _____ Zone _____ State _____

Here's a Free Folder
—One you need in
your business. . . .
It covers quick, easy
carton stitching . . .
and at a saving in
time and labor. It
describes Acme Sil-
verstitchers—made to
meet particular stap-
pling problems—in
many standard mod-
els as well as special
machines.

Silverstitchers are
sturdily built—easily
operated and present
exclusive features
that mean long life
and easy operation—
all are sold under
guar-
antee. Send cou-
pon and get these
money - saving hints
free.

ACME SilverStitcher



SECOND LINE OF DEFENSE

THE WINNING TEAM in any sport is invariably the one that is *deep in reserves* . . . In commerce and industry, the resourceful manufacturer is likewise the one with *a second line of defense*.

For your present adhesives problems—in spite of wartime restrictions—Arabol offers just such a second line of defense. During 58 years of pioneering, more than 10,000 adhesives formulae have been perfected in the Arabol Laboratories. Our aim has always been to deliver the one best adhesive for each industrial requirement.

Today—with the frequent need to use "duration" materials—Arabol's long experience still provides a practical solution to each of your adhesives requirements. As a matter of fact, we know that many of our new formulae will continue in active demand, after the war.

Write to Dept. 58 for *proved* solutions to present-day adhesives problems. Describe your conditions fully.

THE ARABOL MANUFACTURING CO.

PIONEERING SINCE 1885

Executive Offices:

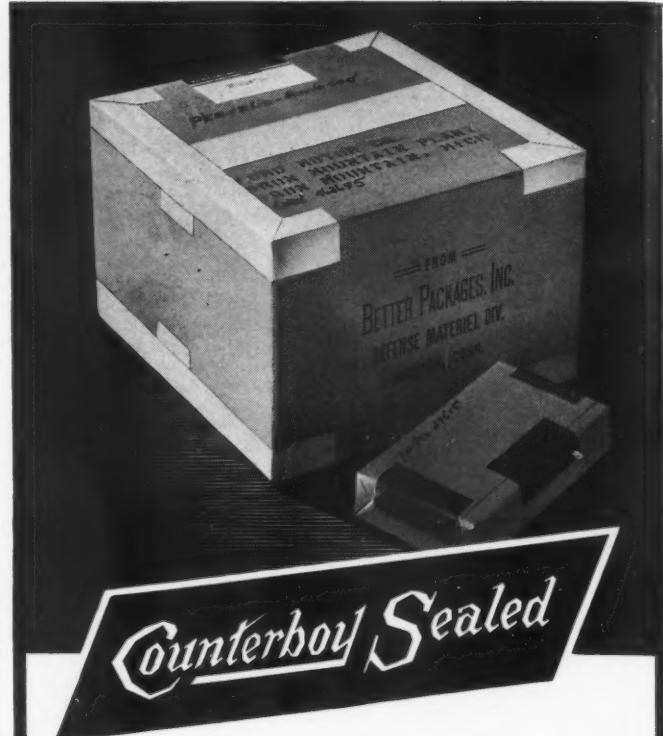
110 East 42nd St., New York 17, N. Y.

Offices and Factories:

BROOKLYN • CHICAGO • SAN FRANCISCO
Branches in Principal Cities



Adhesives? . . . ARABOL!



COUNTERBOY SEALED, your war shipments are safely and quickly sealed to the exacting standards of government regulations.

COUNTERBOY EQUIPPED, your shipping department can continue today's high standards in sealing post war shipments.

Save: Man Hours and Dollars

A COUNTERBOY Regional Distributor is as near as your phone. His rich experience in shipping problems is at your service. Your factory superintendent, purchasing or shipping executives may well benefit from his suggestions:—for speeding up production sealing;—new materials to give stronger shipments;—elimination of waste;—correction in safer methods of application,—improved work layouts etc. . . . resulting in thousand of man hours and dollars saved.

COUNTERBOY SEALING-TAPE MACHINES help your packers turn out uniform, neat, and safely sealed containers and packages. Their Automatic-Moistening Unit can be adjusted to condition any kind or grade of gummed tape for a quick, permanent seal.

Write for descriptive literature—
54 Canal Street, Shelton, Conn.

*Left, TAPE SHOOTER SENIOR for sealing shipping containers
Right, SIMPLEX No. 10 for sealing inside packages*

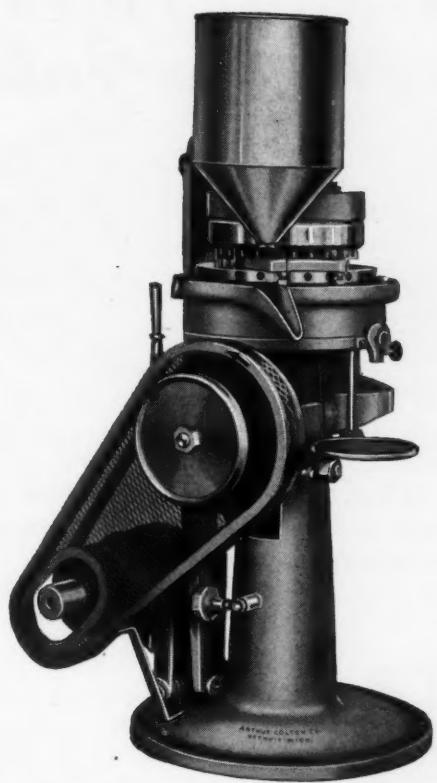


NEW ROTARY TABLET PRESS

New series 200-25 tablet machine embodies years of experience in building equipment, incorporates refinements giving an entirely new standard of performance.

Special features include new variable lower punch pull-down track plus micrometer cell adjustment minimizing punch and die wear and practically eliminating capping; solid steel tie bar; centrally located main drive shaft; lower center of gravity. Range of operating speeds is provided by built-in variable speed drive. Power transmitted through lever operated disk clutch. Special drive materially reduces power consumption. Standard speed motor. Capacity per minute: 300-800 tablets. Diameter of tablet: 3/16" to 5/8", maximum depth of cell: 11/16". Floor space: 30" x 36", height: 60", net weight: 1025 lbs.

ARTHUR COLTON COMPANY
2602 E. JEFFERSON AVE., DETROIT 7, MICHIGAN



*



for ABSORBENT papers

When Johnny comes marching home he will want the same absorbent paper conveniences he has been using in camp and even at the war front.

Are you ready for the increased demand that will come when the Axis is downed for the count?

Yes—we'll all work and win the war first, then we will put the returning heroes back on the job of serving the home front.

You will make the paper napkins, towels, facial tissues and toilet tissues. We will supply new high production machines for their production. Let us hear from you now!

HUDSON-SHARP
MACHINE CO. • GREEN BAY • WIS

*



IF YOU ARE PROUD OF YOUR PRODUCT'S APPEARANCE...PACK IT IN THATCHER GLASS

Sixty years of "know how" in manufacturing quality glass containers enables Thatcher to produce superior glass packs that make products look better . . . sell faster. If you have a glass problem . . . write to Thatcher.

THATCHER MANUFACTURING COMPANY, ELMIRA, N.Y.
Factories: Elmira, N.Y. Streator, Ill. Olean, N.Y.
Long Island City, N.Y. Lockport, N.Y.
SALES OFFICES IN PRINCIPAL CITIES

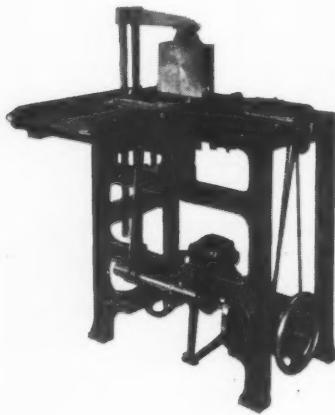
Thatcher
QUALITY GLASS CONTAINERS

* * BUY WAR BONDS * *

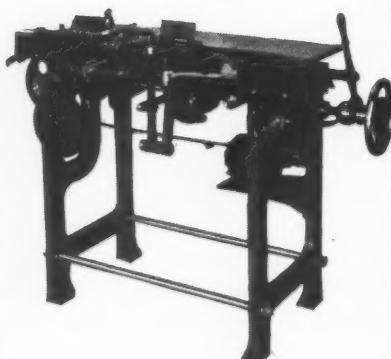
Packaging ... in the Future

How long in the future is anyone's guess but we hope it will not be too long before the War is Won and restrictions lifted to permit these machines to be built again for you.

Plans can now be made, however, and the details worked out to permit delivery as soon as possible in the Post-War period. We will be pleased to work out your problems with you. Send us a sample of each size carton you desire to handle to enable us to recommend machines to meet requirements.



This PETERS JUNIOR CARTON FORMING AND LINING MACHINE sets up 30-40 "Peters Style" cartons per minute, requiring one operator. After the cartons are set up, they drop onto the conveyor belt where they are carried to be filled. Can be made adjustable to handle several carton sizes.



This PETERS JUNIOR CARTON FOLDING AND CLOSING MACHINE automatically closes 30-40 cartons per minute, requiring no operator. Cartons enter this machine on conveyor belt as open, filled cartons and leave machine completely closed, ready to be wrapped or packed for shipment. Can also be made adjustable to handle several carton sizes.

PETERS MACHINERY COMPANY
GENERAL OFFICE AND FACTORY
4700 RAVENSWOOD AVENUE, CHICAGO, ILL.



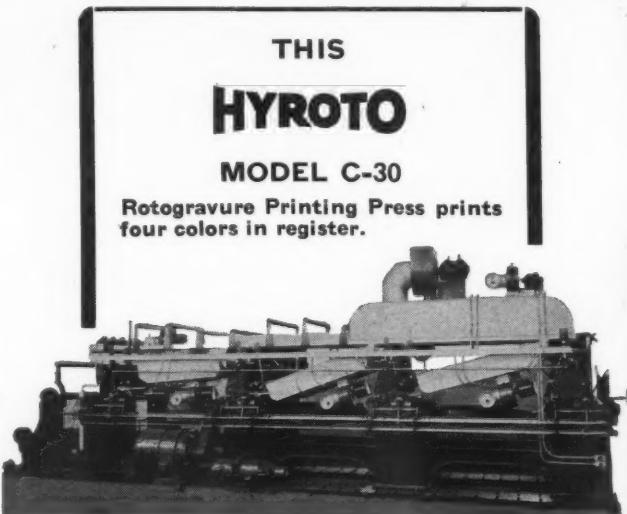
No delay in your shipments when "RED STREAK" Sealing Tape is on the job. RED STREAK is made to stand severe abuse—why not make a trial?

See your jobber for



delivery and prices.

"Red Sealing Tape"
"Streak" Tapes
BROWN - BRIDGE MILLS, Inc., Troy, Ohio



... on many materials which come in rolls up to 30 inches wide. Special HYROTO machines are designed in any size to print any number of colors. There are HYROTOS for laminating, coating, sheeting, scoring, die-cutting. The know-how in rotogravure production, over 30 years pioneering experience in inks, printing, cylinders, plates, production, are behind each HYROTO machine. Ask the men who operate them.*

ROTOGRAVURE ENGINEERING CO.
299 Marginal Street . . . East Boston 28, Mass.

* Names on request.



DISCOVER

THE RECOGNIZED DURABILITY
of "ON-TO-STA"
GUMMED TAPES

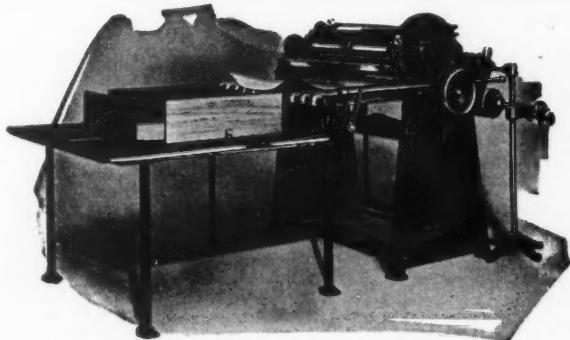
AND GAIN EXTRA SHIPPING PRO-
TECTION FOR YOUR PACKAGES

ATLANTIC GUMMED PAPER CORP.

PLANT & MAIN OFFICE: ONE MAIN ST., BROOKLYN 1, N.Y.

Branch Offices: Philadelphia, Pittsburgh, Chicago,
Boston, Buffalo, Atlanta, Los Angeles, Havana.

*Many Great Nations Are Already
Planning Post War Programs
as are also many business men—**ARE YOU?***



THE BECK SHEETER

After "Unconditional Surrender" is a fact of history, you will want the highest productive Sheeting equipment obtainable, to meet competition. Your choice may be from the hi-speed Electric Eye machines for "spot sheeting" down to the more simple standard machines for plain work.

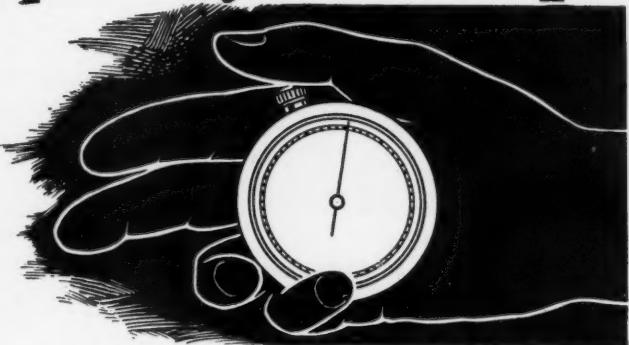
Write us to-day for to-morrow.

CHARLES BECK MACHINE CO.

13th & Callowhill Streets

Philadelphia, Pa.

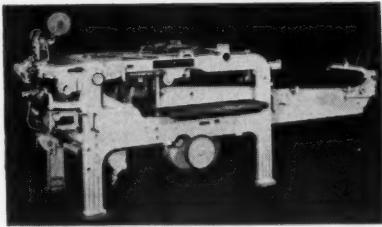
speedy set-ups



**Never before a machine
so easily and quickly adjusted
as the "Oliver"**

If you wrap a variety of packages, the time saved by the quick-change features of the "Oliver" wrapping machine will surprise you. You can make a complete change for package size in a minute or two. Change from "end fold" to "underfold" at the flip of a finger. One hand-wheel adjusts the

folders, the hot plates, the conveyor belt and the seal-plates. You can change the rolls of labels without fuss or waste. The length of the wrapping material can be quickly set, even with the machine in motion.



"OLIVER" WRAPPING MACHINE

The "Oliver" Variety Wrapper deftly handles cellophane, waxed or lacquered glassine, and other heat-sealing materials. Overwraps small and large cartons, trays, odd-shaped items on U-boards which are automatically folded and fed by the machine. Automatic Roll-Type Labeller heat-seals a die-cut thermoplastic label to each package. Has automatic paper stop and automatic roll centering. Accurate thermostatic control. All operations electrically synchronized. *A girl can operate the "Oliver."*

WRITE US TODAY

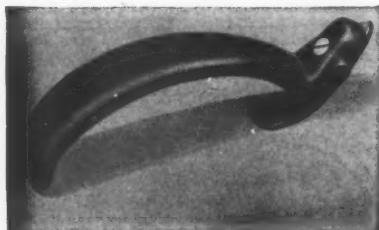
on your wrapping problems

OLIVER MACHINERY COMPANY • GRAND RAPIDS, MICH.

"OLIVER"

AUTOMATIC VARIETY WRAPPING MACHINE

To Conserve Shipping Containers



WIRE STITCH REMOVER

Price \$1.60 Postpaid

materially reduce the time and cost of preparing wire stitched containers for their return trip for re-use. Send orders to *New York Office*.

The Containers Branch of the War Production Board has ruled in favor of re-use of Wire Stitched Shipping Containers, to conserve corrugated and solid fibre board.

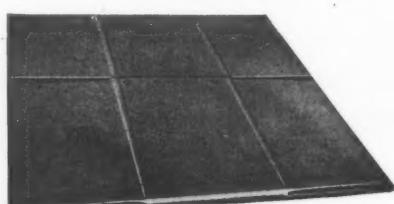
Regular slotted containers that are both bottom and top stitched, when emptied, may now be knocked down by removing the wire stitches, flattening the boxes as illustrated here, and returning them in bundles to the original packer.

This wire stitch remover is a handy, practical tool for quickly removing the wire stitches without breaking or tearing the board. It will

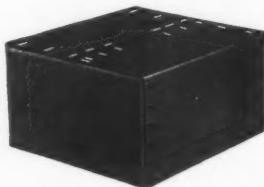


BLISS TOP and BOTTOM STITCHER

For assembling cases, the blade anvil is lowered, table is swung to one side, and post placed in position for bottom stitching. For top stitching, the post is removed and blade anvil and table swung into position. Change is made in less than one minute.



Box with Stitches Removed and Flattened for Return Trip



Box Stitched Top and Bottom

DEXTER FOLDER COMPANY

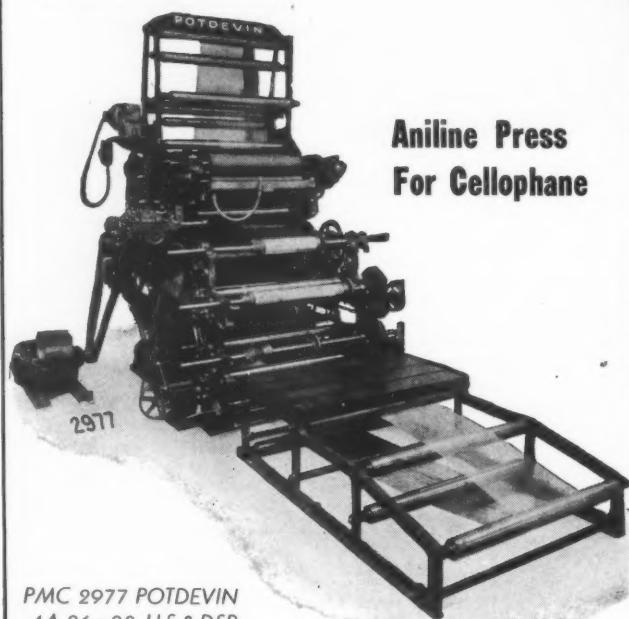
330 West 42nd Street, New York 18, N. Y.

CHICAGO, ILL.

• PHILADELPHIA, PA.

• CINCINNATI, OHIO

POTDEVIN



Aniline Press
For Cellophane

PMC 2977 POTDEVIN
4A 26 x 28 U.S. & DSR

4-Color Multi-length pigmented Aniline Ink Web Printing Press
with Unwind, Slitters and Dual Shaft Rewind.
Especially suitable for cellophane.

POTDEVIN MACHINE CO.
1244 - 38th Street
Established 1893

Brooklyn 18, N. Y.
Tel. Windsor 6-1700

Classified Advertisements

All classified advertisements payable in advance of publication. Rates: \$5.00 up to sixty words, enclosed in border, \$10.00 per inch. Publisher reserves the right to accept, reject or censor a classified copy.

Will pay immediate cash for Printing, Book Binding, Paper Box and Allied Machinery in single units or complete plants. Please write full details and best price. Box 233, Modern Packaging.

"Richard Wax Coating Machine complete with gear head motor and drying fan and motor. Good mechanical condition. Capacity 144 units per minute. Suitable dipping packages, cans, and machine parts in wax, paint, or rust inhibitor. Attractively priced. Address Magnolia Coffee Company, P. O. Box 285, Houston 1, Texas."

SUBSCRIPTION WARNING

Pay your subscription agent only if he has our
Authorization Card dated July 1, 1944

Make checks payable to

MODERN PACKAGING
Chanin Building, 122 E. 42nd St., New York, N.Y.

INDEX TO ADVERTISEMENTS

ABC Packaging Machine Co.	42	Johnson & Son, Inc., S. C.	14
Acme Steel Co.	151	Kalamazoo Vegetable Parchment Co.	6
Aluminum Co. of America	35	Kimberly-Clark Corp.	10
Aluminum Seal Co.	9	Kimble Glass Co.	15
American Can Co.	Inside Front Cover		
American Cyanamid Co.	49	Lowe Paper Co.	18
Anchor Hocking Glass Corp.	19	Lusteroid Container Co., Inc.	146
Angier Corp.	148	Mac Sim Bar Paper Co.	150
Arabol Mfg. Co.	152	Manhattan Paste & Glue Co. Inc.	8
Armstrong Cork Co.	23, 125	Maryland Glass Corp.	39
Arrow Manufacturing Co., Inc.	133	Mason Box Co., The	149
Atlanta Paper Co.	47	Michigan Carton Co.	Inside Back Cover
Atlantic Gummed Paper Corp.	155	Milprint, Inc.	31
Beck Machine Co., Charles	155	Monsanto Chemical Co.	158
Bemis Bro. Bag Co.	53	Mundet Cork Corp.	30
Better Packages, Inc.	152	Nashua Gummed & Coated Paper Co.	66
Bostitch, Inc.	141	National Casein Sales	150
Brown-Bridge Mills, Inc.	154	Oliver Machinery Co.	155
Burt Co., Inc., F. N.	109	Owens-Illinois Glass Co.	36, 37, Back Cover
Cameo Die & Label Co.	48	Oxford Paper Co.	34
Cameron Machine Co.	148	Package Machinery Co.	110
Carr-Lowrey Glass Co.	43	Packaging Catalog	46
Celanese Celluloid Corp.	11	Palmer, Inc., Frank D.	32, 33
Celluplastic Corp.	65	Parker Rust Proof Co.	63
Central States Paper & Bag Co.	51	Peters Machinery Co.	154
Classified	156	Phoenix Metal Cap Co.	3
Colton Co., Arthur	153	Pneumatic Scale Corp. Ltd.	145
Consolidated Packaging Machinery Corp.	151	Potdevin Machine Co.	156
Container Corp. of America	45	Redington Co., F. B.	5
Continental Can Co.	41	Regent Specialties, Inc.	40
Creative Printmakers Group	148	Reynolds Metals Co.	121
Crown Can Co.	123	Riegel Paper Corp.	29
Crown Cork & Seal Co.	139	Ritchie & Co., W. C.	21
Dexter Folder Co.	156	Rotogravure Engineering Co.	154
Dobeckmun Co., The	57	Roto-Lith, Ltd.	25
Dow Chemical Co., The	61	Scandia Mfg. Co.	44
DuPont Cellophane	17	Sefton Fibre Can Co.	28
DuPont Cel-O-Seal	59	Stecher-Traung Lithograph Corp.	150
Eastman Kodak Co.	143	Stokes & Smith Co.	24
Ferguson Co., J. L.	137	Sutherland Paper Co.	38
Findley Co., The F. G.	127	Swift & Co.	20
Gair Co., Inc., Robert	22	Sylvania Industrial Corp.	50
Gardner-Richardson Co., The	26, 27	Thatcher Mfg. Co.	153
Goodrich Co., The B. F.	7	Traver Corp.	147
Goodyear Tire & Rubber Co.	13	Triangle Package Machinery Co.	62
Hazel-Atlas Glass Co.	55	Union Paste Co.	127
Heekin Can Co., The	129	U. S. Automatic Box Machinery Co. Inc.	147
Heidt Glass Works, Inc.	16	U. S. Rubber Co.	131
Hinde & Dauch Paper Co.	12	U. S. Treasury Dept.	135
Hubbs Houses	64	Warner Brothers Co., The	58
Hudson-Sharp Machine Co.	153	Waterbury Companies, Inc.	56
Ivers-Lee Co.	60	Wright's Automatic Machinery Co.	52

MODERN PACKAGING
BRESKIN PUBLISHING COMPANY

122 East 42nd St.

New York 17, N. Y.

JUNE • 1944 157

SIX PLASTICS—WITH SEVERAL HUNDRED VARIATIONS

The broad and versatile Family of Monsanto Plastics is one of the largest and most varied groups of plastics offered by any one manufacturer. There are six basic types:

1. LUSTRON—Polystyrene molding compounds which are produced from one of the newest and most promising of the synthetic resins . . . and are notable as the lightest of all commercial plastics with excellent dimensional stability, unsurpassed electrical qualities and outstanding appearance values.

2. RESINOX—Phenol-formaldehyde resins which are compounded with various fillers into strong, heat-resistant molding compounds with good electrical qualities . . . and are also supplied in liquid or powder form for bonding other materials into sheets or simple shapes of exceptional strength and large area.

3. VINYL ACETALS—These rubber-like resins are processed into molding compounds . . . supplied in transparent, translucent or opaque sheets or rolls . . . compounded into special "dopes" or sheets for "rubberizing" fabric . . . or special bonding resins.

4. FIBESTOS—Cellulose acetate, also tough, strong and colorful which is compounded with various plasticizers into molding compounds to be shaped by heat and pressure into final form . . . and is also supplied as sheets, rods, tubes, and continuous rolls.

5. RESIMENE—These new melamine resins, like Resinox, will be supplied in powder or liquid form for bonding other materials . . . and compounded with fillers into molding compounds with promise of good heat resistance, excellent resistance to water and chemicals, an unlimited color range and superlative electrical qualities.

6. NITRON—Tough, strong, water-resistant and dimensionally stable cellulose nitrate which is supplied in a limitless range of colors in sheets, rods, and tubes largely for mechanical fabrication into finished form.

For more complete information on all these materials, write on your business letterhead for the 24-page book prepared especially for product designers.



How to Find the Best Plastic for Your Product

No one plastic can honestly be offered as a solution to all problems. In the family of Monsanto Plastics, for example, there are six broad, basic types and several hundred standard compounds, each with different properties, each designed for different uses.

When you have a set of blueprints to translate into finished products, finding the one *best* material from that wide array can be a headache—or a sure and simple process.



The secret is to put *two* experts to work on the problem—and to get them together as early in the development of your product as you can. First and most important of the two is you.



Obviously you and your engineers are the only ones who can answer such all-important questions as:

What service conditions will the product meet?

★ ★ ★

The broad and versatile family of Monsanto Plastics includes: Lustron polystyrenes • Monsanto vinyl acetals • Nitron cellulose nitrates • Fibestos cellulose acetates • Resinox phenolic compounds • Resimene melamine compounds. Forms in which they are supplied include: Sheets • Rods • Tubes • Molding Compounds • Castings • Industrial Resins • Coating Compounds • Vuepak Rigid, Transparent Packaging Materials.

What functions will it be expected to perform?

How many will you need—and how fast?

How much should it cost to produce?

The other partner to your search: a Monsanto Plastics consultant.

Because the family of Monsanto Plastics is one of the broadest, most versatile groups of plastics offered by any one producer, your Monsanto consultant can make two important contributions.



From his wide experience with many different plastics he can give you both expert and unbiased advice on the material best suited to your needs.

From his wide knowledge of the plastics industry, he can suggest the names of molders or fabricators best equipped for work on your particular problem.

To get in touch with a Monsanto Plastics consultant, write: MONSANTO CHEMICAL COMPANY, Plastics Division, Springfield 2, Mass.

MONSANTO
PLASTICS
SERVING INDUSTRY . . . WHICH SERVES MANKIND

Waste Paper!



Who, Me?

We can't assume the indifference of the gentleman pictured above. In his heart of straw, Mr. Scarecrow can afford to be indifferent. And, his mythical mind being closed to the world, he doesn't have to care. *But we do*, and we can't afford to be indifferent.

Michigan
CARTON CO.
BATTLE CREEK, MICHIGAN

There can be no exceptions in our all-out effort to salvage waste paper. Every small bit is important and *you* share the responsibility. So, please keep in mind the saving and salvage of paper at all times. *And*, should you happen to meet an "indifferent Mr. Scarecrow" — *put him wise!*



Mrs. Rex Stout

wife of the novelist who

going to market in Duraglas containers. Products that benefit in use from the intrinsic qualities of glass are also moving into markets in huge volume. Advertisements like this are reaching many millions of America's best buyers every month. Before you decide on a package for your product, it will pay you to investigate the possibilities of adding eye-appeal to your brand acceptance at a competitive price with a Duraglas Container. Write Owens-Illinois Glass Company, Toledo, Ohio for consultation on the vital subject, "How Duraglas Containers Can Serve You."

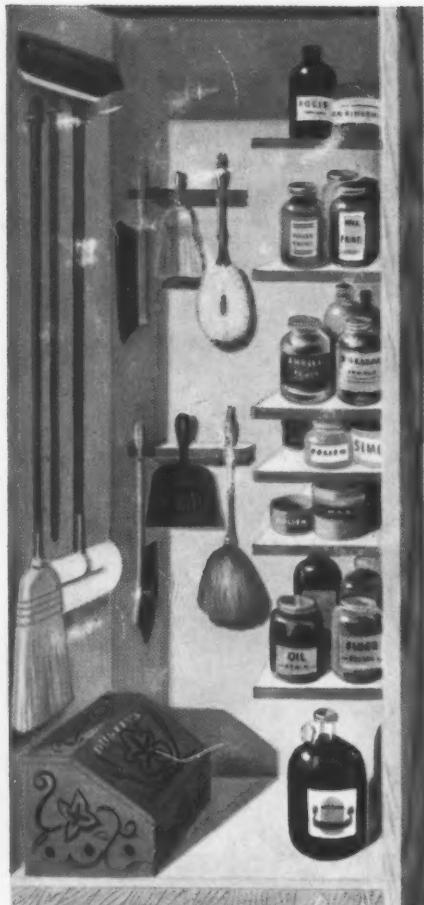
"I have eve

interesting in the East. And the closets are full of novel design ideas. Here are sketches of Pola Stout's vivid, sparkling, orderly closets. "We

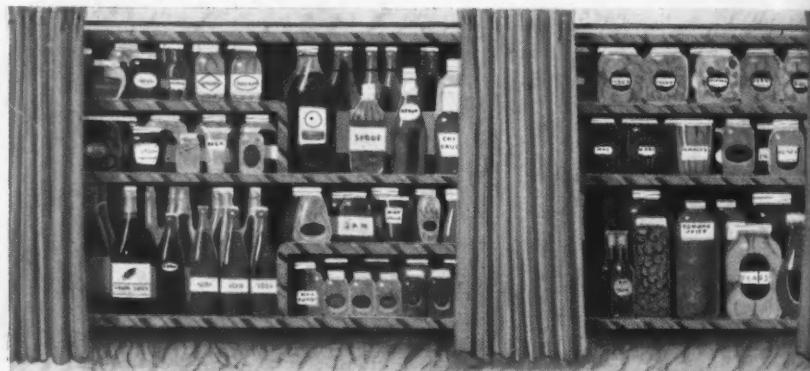
in her

signers, says . . .

a lot of the housework—with our daughters to help," she says, "so it's planned to be simple—and fun!" Notice how she has put every inch of space to work—and how the glass lets you see, at one quick glance, what's there.



Spic-Span Closet—that almost keeps itself tidy. "I buy cleansers in glass because glass is so easy to pour from and wipe clean after using," says Mrs. Stout. "And I always know how much of each I have."



Unusual Supply Closet—decorative as a mural, with foods in sparkling glass. Shelves, built to fit tall or short glass containers, make neatness easy. Curtains and shelf coverings are Pola Stout's own fabric design. "I'm naturally thrifty," says Mrs. Stout, "and I like to see the quantity and texture of fruit. That's why I buy in glass!"



Refrigerator—"It's easy to keep food that's in glass," says Mrs. Stout. "Left-overs are always in perfect condition and glass jars take up less space than bowls and dishes."



Bath Shelves—have private reservations for young Rebecca and Barbara with Mrs. Stout's things outside. Glass bottles protect the medicines, make them easy to find and use.

Duraglas

TRADE MARK REG. U.S. PAT. OFF.

OWENS-ILLINOIS GLASS COMPANY, TOLEDO, OHIO

MAKERS OF CONTAINERS THAT GIVE A LIFT TO LIVING

TUNE-IN on "Broadway Matinee" with Alfred Drake, star of the Theatre Guild's Musical hit, "Oklahoma!" Mondays thru Fridays, CBS, 4 P.M., Eastern War Time.